PATTERNS OF USE OF MENTAL HEALTH CARE IN PORTUGAL, BEFORE AND DURING AN ECONOMIC CRISIS

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Tese para obtenção do grau de Doutor em Medicina

na Especialidade em Saúde Mental

na Faculdade de Ciências Médicas | NOVA Medical School da Universidade NOVA de Lisboa

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Dedicated to the memory of Alexandre

Sísifo

Recomeça...
Se puderes
Sem angústia
E sem pressa.
E os passos que deres,
Nesse caminho duro
Do futuro
Dá-os em liberdade.
Enquanto não alcances
Não descanses.
De nenhum fruto queiras só metade.

E, nunca saciado,
Vai colhendo ilusões sucessivas no pomar.
Sempre a sonhar e vendo
O logro da aventura.
És homem, não te esqueças!
Só é tua a loucura
Onde, com lucidez, te reconheças...

Miguel Torga

The reasonable man adapts
himself to the world:
the unreasonable one persists in trying
to adapt the world to himself. Therefore, all
progress depends on the unreasonable man.

George Bernard Shaw

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Abstract

Background: Closing the mental health care gap should be at the top of the public health agenda worldwide, because low access to quality care is a denial of fundamental human rights and leads to substantial suffering, disability, and economic costs. Periods of economic crisis might further increase the treatment gap, particularly in already vulnerable population groups. Organised in three research phases, this doctoral thesis aims to contribute to a more systematised knowledge about the use of mental health care in Portugal, and to a better understanding of the impact of economic crises on the use of mental health care. A systematic review of the current evidence on the association between periods of economic crisis and the use of mental health care was conducted in the 1st phase. In the 2nd phase the use, patterns and barriers to mental health care among adults with mental disorders in Portugal, and the impact of the Great Recession on the use of psychotropic drugs were evaluated. The individual and contextual factors that influence patterns of use of acute psychiatric inpatient services, specifically length of hospital stay (LOS), readmission and involuntary hospitalisation, before and during an economic crisis, were explored in the 3rd phase.

Methods: In the 1st research phase, a systematic literature review was carried out following the PRISMA guidelines. In the 2nd phase research was conducted using data from the National Mental Health Survey (2008/09), a nationally representative cross-sectional survey (n=3849) part of the World Mental Health Survey Initiative, and from the National Mental Health Survey Follow-up (2015/16) (n=911). Four multiple logistic regression models were performed to evaluate the association between sociodemographic and clinical variables and having received treatment (yes/no) or barriers to treatment (low perceived need, attitudinal barriers, structural barriers) among the participants with any 12-month mental disorder in 2008/09, adjusting for age, gender and presence of any physical disorder. Multiple generalised estimating equations models were performed to estimate the population odds of consuming psychotropic drugs in 2008/2009 (T0) and in 2015/2016 (T1), adjusting for education. Odds ratios were estimated and interpreted at specific levels of the main effects and of interaction terms considering differences in psychotropic drugs use in T0 and T1, according to gender and age. The 3rd research phase used data from the SMAILE project which studied patients

from the catchment areas of five public psychiatric services who had at least one admission during 2002, 2007 and 2012. Multiple logistic regression models were used to estimate the association between longer LOS (≥17 days) and readmission (>1 admission) with the sociodemographic, clinical, and contextual factors under study. Additionally, a Poisson generalised linear model was employed for modelling the expected number of involuntary hospitalisations as a function of the following covariates: gender, age group, marital status, education, employment status, suicide attempt, psychiatric diagnosis, year of evaluation and psychiatric service.

Results: In the 1st phase the main findings were that 1) periods of economic crisis are linked to an increase in seeking general help for mental health problems, with conflicting results regarding the changes in the use of specialised psychiatric care; 2) these periods are associated with a higher use of psychotropic drugs and an increase in hospital admissions for mental disorders, with mixed evidence on the use of mental health care specifically due to suicide behaviour. In the 2nd phase the main findings were that 1) the majority of participants (65.4%) with a mental disorder did not receive treatment; 2) the most important determinant of the use of health services was the presence of a mood disorder, followed by disability, while single participants and those with basic or secondary education were the ones who least accessed mental health care; 3) attitudinal barriers were the most commonly reported barrier to treatment, followed by low perceived need and structural barriers; 4) attitudinal barriers were more likely among participants with lower levels of education, and less likely among participants with substance use disorders; 5) low perceived need was higher among single people, and lower among those with anxiety and mood disorders; 6) structural barriers were more likely among unemployed participants; 7) after adjusting for age, gender and education, population odds of consuming any psychotropic drugs in 2015/16 were estimated to be 1.5 times higher than in 2008/09 (OR = 1.50; 95% CI: 1.13–2.01), particularly for hypnotics/sedatives (OR = 1.60; 95% CI: 1.14–2.25); 8) women and older individuals presented higher odds of consuming any psychotropic drugs, but the economic crisis had a disproportionate impact on men and younger individuals. In the 3rd research phase the main findings were that: 1) longer LOS was associated with older age, a diagnosis of psychosis, and compulsory admission; 2) shorter LOS was associated with being married, having a secondary education, having experienced a suicide attempt, having been diagnosed with a substance

use disorder and "other mental disorders", being admitted in 2012, and belonging to the catchment area of two of the psychiatric services evaluated (Hospital de Magalhães Lemos EPE and Centro Hospitalar Psiquiátrico de Lisboa); 3) higher odds of readmission were associated with being retired, a diagnosis of psychosis, compulsory admission, and belonging to the catchment area of four of the psychiatric services evaluated (Hospital de Magalhães Lemos EPE, Centro Hospitalar Psiquiátrico de Lisboa, Hospital Professor Doutor Fernando Fonseca EPE, and Unidade Local de Saúde do Baixo Alentejo EPE); 4) lower odds of readmission were associated with older age and with having secondary or higher education; 5) an increase of involuntary hospitalisations was associated with male gender, secondary or higher education, a psychiatric diagnosis of psychosis, and admission in 2007 and in 2012; 6) a decrease in involuntary hospitalisations was associated with being married or cohabitating, having experienced a suicide attempt, and belonging to the catchment area of three of the psychiatric services evaluated (Hospital de Magalhães Lemos EPE, Centro Hospitalar Psiquiátrico de Lisboa and Unidade Local de Saúde do Baixo Alentejo EPE).

Conclusions: The results of this doctoral thesis confirm the high unmet mental health needs in Portugal, suggest what are the main barriers to care, and identify the subgroups most vulnerable to these barriers and to more severe hospitalisation patterns. This evidence might help to establish priorities for action when we are experiencing a serious economic crisis and there is an urgent need to reduce the mental health care gap. The current momentum of interest in mental health should be an opportunity to invest and improve the use of resources and the organisation of services. Strategies to improve the capacity of the mental health sector to respond to the mental health demands include models of care that are closer to the population, facilitating the early identification of mental health problems and the implementation of integrated and psychosocial interventions. This could be achieved by developing a more robust and widespread network of community-based mental health teams and services, the best solution to enhance continuity of care, to reinforce treatment compliance, to improve support for and collaboration with families, and to improve coordination with primary care and social services. It is also essential to improve help-seeking attitudes by implementing mental health literacy interventions, using digital technologies, and encouraging interpersonal contact with people with mental disorders. Last but not least,

people with mental disorders should be engaged in all aspects of mental health care, with the full recognition of their desires and preferences and respect for their human rights.

Resumo

Enquadramento: Eliminar a lacuna de cuidados de saúde mental deve ser uma prioridade de saúde pública em todo o mundo, porque o baixo acesso a cuidados de qualidade é uma negação de direitos humanos fundamentais e traduz-se em sofrimento, incapacidade e custos económicos substanciais. Os períodos de crise económica podem aumentar ainda mais a lacuna de tratamento, particularmente em grupos da população já vulneráveis. Organizada em três fases de investigação, esta tese de doutoramento pretende contribuir para um conhecimento mais sistematizado sobre a utilização dos cuidados de saúde mental em Portugal e para uma melhor compreensão do impacto das crises económicas na utilização dos cuidados de saúde mental. Na 1ª fase, foi feita uma revisão sistemática da evidência sobre a associação entre períodos de crise económica e o uso de cuidados de saúde mental. Na 2ª fase, foram avaliados o uso, os padrões e as barreiras à utilização de cuidados de saúde mental em adultos com doença mental em Portugal e o impacto da Grande Recessão no consumo de psicofármacos. Na 3ª fase foram explorados os fatores individuais e contextuais que influenciam os padrões de internamento de doentes agudos, especificamente a demora média, a readmissão e o internamento compulsivo, antes e durante uma crise económica.

Métodos: Na 1ª fase da investigação, foi realizada uma revisão sistemática da literatura seguindo o PRISMA Statement. Na segunda fase, foram usados dados do Estudo Epidemiológico Nacional de Saúde Mental (2008/09), um estudo transversal representativo da população portuguesa (n=3849) parte da World Mental Health Survey Initiative, e dados do Follow-up do Estudo Epidemiológico Nacional de Saúde Mental (2015/16) (n=911). Foram efetuados quatro modelos de regressão logística múltipla para avaliar a associação entre variáveis sociodemográficas e clínicas e ter recebido tratamento (sim/não) ou barreiras ao tratamento (baixa necessidade percebida, barreiras atitudinais, barreiras estruturais) nos participantes com doença mental em 2008/09, ajustando por idade, género e presença de doença física. Foram efetuados modelos de equações de estimativas generalizadas múltiplas para estimar a probabilidade na população de consumo de psicofármacos em 2008/2009 (T0) e em 2015/2016 (T1), ajustando por educação. Foram estimados e interpretados *odds ratios* em níveis específicos dos efeitos principais e dos termos de interação considerando as

diferenças de consumo de psicofármacos em T0 e T1, de acordo com o género e a idade. A 3ª fase de investigação usou dados do projeto SMAILE, que estudou utentes das áreas de influência de cinco serviços de Psiquiatria públicos com pelo menos um internamento em 2002, 2007 e 2012. Foram efetuados modelos de regressão logística múltipla para estimar a associação entre demora média mais longa (≥ 17 dias) e readmissão (> 1 admissão) e os fatores sociodemográficos, clínicos e contextuais em estudo. Além disso, foi utilizado um modelo linear generalizado de Poisson para modelar o número esperado de internamentos compulsivos em função das seguintes covariáveis: género, grupo etário, estado civil, educação, situação profissional, presença de tentativa de suicídio, diagnóstico psiquiátrico, ano de avaliação e serviço de Psiquiatria.

Resultados: Na 1ª fase foi encontrado que 1) os períodos de crise económica estão associados a aumento da procura de cuidados gerais para problemas de saúde mental, com evidência contraditória quanto à utilização de cuidados especializados psiquiátricos; 2) esses períodos estão associados a maior consumo de psicofármacos e a aumento de internamentos por doença mental, com resultados contraditórios na utilizaçãos de cuidados de saúde mental por comportamento suicidário. Na 2ª fase foi encontrado que 1) a maioria dos participantes (65,4%) com doença mental não recebeu tratamento; 2) o determinante mais importante da utilização de serviços de saúde foi a presença de perturbação do humor, seguido da incapacidade, sendo os participantes solteiros e os que têm ensino básico e secundário os que menos acederam aos serviços de saúde; 3) as barreiras atitudinais foram as mais frequentemente reportadas, seguidas da baixa necessidade percebida e das barreiras estruturais; 4) a probabilidade de reportar barreiras atitudinais foi maior nos participantes com níveis mais baixos de educação e menor nos participantes com perturbação por utilização de substâncias; 5) a baixa necessidade percebida foi mais reportada por solteiros e menos reportada por participantes com perturbação da ansiedade e do humor; 6) a probabilidade de reportar barreiras estruturais foi maior nos participantes desempregados; 7) ajustando para idade, género e educação, foi estimado que a probabilidade na população de consumir qualquer psicofármaco em 2015/16 foi 1,5 vezes maior do que em 2008/09 (OR = 1,50; IC 95%: 1,13–2,01), particularmente para hipnóticos / sedativos (OR = 1,60; IC 95%: 1,14–2,25); 8) as mulheres e os idosos apresentaram maior probabilidade de consumir qualquer psicofármaco, mas a crise económica teve um impacto desproporcional nos homens e nos jovens. Na 3ª fase

da investigação, os principais resultados foram: 1) a demora média mais longa foi associada a idade superior, diagnóstico de psicose e internamento compulsivo; 2) a demora média mais curta foi associada a ser casado, ter ensino secundário, ter feito uma tentativa de suicídio, ter o diagnóstico de perturbação de utilização de substâncias e "outras doenças mentais", ter sido internado em 2012 e pertencer à área de influência de dois dos serviços de Psiquiatria avaliados (Hospital de Magalhães Lemos EPE e Centro Hospitalar Psiquiátrico de Lisboa); 3) a maior probabilidade de readmissão foi associada a ser reformado, ter o diagnóstico de psicose, ter internamento compulsivo e pertencer à área de influência de quatro dos serviços de Psiquiatria avaliados (Hospital de Magalhães Lemos EPE, Centro Hospitalar Psiquiátrico de Lisboa, Hospital Professor Doutor Fernando Fonseca EPE e Unidade Local de Saúde do Baixo Alentejo EPE); 4) a menor probabilidade de readmissão foi associada a ter idade superior e ter ensino secundário ou superior; 5) o aumento de internamento compulsivo foi associado a sexo masculino, ensino secundário ou superior, diagnóstico psiquiátrico de psicose e internamento em 2007 e em 2012; 6) a diminuição de internamento compulsivo foi associada a ser casado ou coabitar, ter feito uma tentativa de suicídio e pertencer à área de influência de três dos serviços de Psiquiatria avaliados (Hospital de Magalhães Lemos EPE, Centro Hospitalar Psiquiátrico de Lisboa e Unidade Local de Saúde do Baixo Alentejo EPE).

Conclusões: Os resultados desta tese de doutoramento confirmam as elevadas necessidades não satisfeitas de saúde mental em Portugal, sugerem quais são as principais barreiras aos cuidados e identificam os subgrupos mais vulneráveis a essas barreiras e a padrões de hospitalização mais graves. Esta evidência pode ajudar a estabelecer prioridades de ação quando estamos a viver uma grave crise económica e há uma necessidade urgente de reduzir a lacuna nos cuidados de saúde mental. O atual momento de interesse pela saúde mental deve ser uma oportunidade para investir e melhorar a utilização dos recursos e a organização dos serviços. As estratégias para melhorar a capacidade do setor da saúde mental para responder às necessidades de saúde mental incluem modelos de cuidados mais próximos da população, que facilitam a identificação precoce de problemas de saúde mental e a implementação de intervenções integradas e psicossociais. Este objetivo poderá ser alcançado com o desenvolvimento de uma rede mais robusta e ampla de equipas e de serviços de saúde mental baseados na comunidade, a solução mais efetiva para melhorar a continuidade de cuidados, reforçar a adesão ao tratamento, melhorar o apoio e a

colaboração com as famílias e aprofundar a coordenação com os cuidados de saúde primários e os serviços sociais. É também essencial melhorar a procura de ajuda, implementando intervenções de literacia em saúde mental, usando tecnologias digitais e incentivando o contacto interpessoal com pessoas com doença mental. Por último, mas não menos importante, as pessoas com doença mental devem ser envolvidas em todos os aspetos dos cuidados de saúde mental, com pleno reconhecimento de seus desejos e das suas preferências e respeito pelos seus direitos humanos.

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AD: Anno Domini

AIR: Adjusted Incidence Rates

ARR: Adjusted Relative Risk

CAPI: Computer-Assisted Personal Interview

CC: Cross-correlation Coefficient

CI: Confidence Interval

CIDI: WHO Composite International Diagnostic Interview

COVID-19: Coronavirus disease 2019

CRPD: Convention on the Rights of Persons with Disabilities

DALYs: Disability-Adjusted Life Years

DIS: Diagnostic Interview Schedule

DMR: Davinia María Resurrección

DNA: Deoxyribonucleic Acid

DSM: Diagnostic and Statistical Manual of Mental Disorders

ECA: Epidemiologic Catchment Area Program

EPE: Entidade Pública Empresarial

GBD: Global Burden of Disease

GC: Graça Cardoso

GDP: Gross Domestic Product

GEE: Generalised Estimating Equations

GLM: Generalised Linear Model

HIV/AIDS: Human Immunodeficiency Virus/Acquired Immunodeficiency Syndrome

ICD: International Classification of Diseases

IQR: Interquartile Range

IRR: Incidence Risk Ratio

LAUR: Local Area Unemployment Rates

LOS: Length of Hospital Stay

MEDLINE: Medical Literature Analysis and Retrieval System Online, or MEDLARS Online

MH Crisis Impact Study: Mental Health Crisis Impact Study

MS: Manuela Silva

NCDs: Noncommunicable Diseases

NCS: National Comorbidity Survey

NHS: National Health Service

NIMH: National Institute of Mental Health

OR: Odds Ratio

PR: Prevalence Ratio

PRISMA: Preferred Reporting Items for Systematic Reviews and Meta-Analyses

SD: Standard Deviation

SE: Standard Error

SMAILE: Study on Mental Health - Assessment of the Impact of Local and Economic Conditioners

SPSS: Statistical Package for the Social Sciences

UN: United Nations

US: United States

WHO: World Health Organization

WHO WHODAS-II: WHO Disability Assessment Schedule for the WNHS Initiative

WMHS: World Mental Health Survey

YLDs: Years Lived with Disability

YLLs: Years of Life Lost

PART I – THEORETICAL BACKGROUNDS

1. Introduction

1.1. Description, classification and diagnosis of mental disorders

Diagnosis and classification of mental disorders are still controversial issues.

Mental health and related concepts such as normality, function and meaning have been understood and defined variously by scholars from different historical, cultural and academic traditions. *"Mental health can be defined as an asset or a resource that enables positive states of well-being and provides the capability for people to achieve their full potential"* (1, p.10), and it is generally agreed that it is broader than a lack of mental disorder. Mental health and mental disorder exist along a continuum – gains in mental health predict decline in mental disorders at a population level over time, even if this association is not linear (1).

The classification of mental disorders has been a challenge for psychiatry since its inception (2). Describing and classifying mental disorders is important to help to make sense of complex observations in clinical practice (3), to estimate prevalence and incidence, to allocate resources for treatment, and for ethical and legal reasons (4, 5). However, the efforts to develop psychiatric nosology have been hampered by the lack of any agreed definition for what constitutes a disorder (4) or the lack of any empirical evidence of an "essential nature" of psychiatric illness – instead, *"psychiatric disorders are fuzzy constructs that shift when viewed in different ways"* (6). The clinical manifestations of mental disorders of individuals or populations are diverse and complex, what constitutes normal and abnormal behaviour and affect varies over time and from one culture to another (5), there is no clear biological substrate or physical test to support diagnosis (7), and our understanding of the underlying causal mechanisms of mental disorders is still incomplete, and diagnosing in psychiatry has thus been an imperfect task.

The definition of mental disorder received much criticism over time. Some authors considered that the concept of mental disorder was a myth or merely a judgmental label to justify the use of medical power to intervene in socially disapproved behaviour (8–10), and others that the concept was too broad, turning every human problem or any type of maladaptive or socially

unacceptable behaviour into a disease, with dangerous medicalisation of social problems, unnecessary labelling, and social control (4).

Mental disorders are characterised by some combination of abnormal thoughts, emotions, behaviour and relationships with others (21). Psychiatric nosology has increasingly emphasised the description of observable patterns of behaviours (signs) and self-reported feelings and thoughts (symptoms), their classification into syndromes, and the diagnosis of a mental disorder (3). A prerequisite for any satisfactory classification scheme is that the diagnoses are reliable, i.e. that clinicians or researchers will agree whether particular symptoms and disorders are present or absent in particular cases (12, 13). Reliability has been increasingly achieved by making descriptions of symptoms more "observational", without involving uncertain theoretical assumptions (12). The other prerequisite is validity, i.e. the extent to which a concept means what it is supposed to mean (13) and correctly distinguishes between disorder and non-disorder (14). Validity of the existing schemes of classification is a much more difficult topic (13). Diagnosis is a social construct, because it depends on labelling certain behaviours as abnormal or defining the point at which symptoms that exist on a continuum are considered a disorder (15). Normal distress, normal trait population variance, maladaptive coping with common stressors, and adaptive coping with uncommon stressors should not be categorised as a mental disorder (16).

Psychiatric nosology has a long history and is an ongoing reflection (1, 5), and evolved from *"the great professor principle"* to *"the consensus of experts"* (17). For several centuries, "*great men in psychiatry*" (e.g. Pinel, Griesinger, Kraepelin, Bleuler, and Schneider) have developed and promulgated their own nosological systems, whose acceptance was based on clarity of thought and clinical applicability, but ultimately on their personal authority (17). In the twentieth century, there was a paradigmatic shift toward reliance on the consensus of experts on methods and classification, leading to the International Classification of Mental and Behavioural Disorders (ICD), produced by the World Health Organization, and the Diagnostic and Statistical Manual of Mental Disorders (DSM), produced by the American Psychiatric Association (17). In their first editions, the manuals compiled systematic collection of hospital data on causes of mortality and morbidity (18). In the DSM-III, an initial attempt was made to delineate criteria and to create systems with better validity for classifying mental

disorders, not dependent on theoretical perspectives (psychodynamic, biological, etc.) (4, 19, 20). The initial impetus of the American Psychiatric Association's Task Force on Nomenclature and Statistics to define medical and mental disorders grew out of the controversy as to whether or not homosexuality, per se, should be deleted from the psychiatric nomenclature (4). As a result, in the DSM-III mental disorder was conceptualised in terms of distress and impairment, less prone to moral, cultural, and religious values (21), and contrasting with most of the previous theoretical literature that *"define mental disorder primarily by some more or less hypothetical fact-of-the-matter, such as deviation from a population statistical norm, or biological design, or a laboratory test"* (16, p. 616). The categorical classification into discrete disorders raised criticism, and more recently a dimensional approach has been proposed instead (1). On the one hand, because diagnosis can oversimplify and undervalue diversity, continua, and complexities of personal circumstances (1). On the other hand, because overlapping clinical presentations, shared risk variants and causal pathways are consistent with a dimensional approach to symptom spectra (1). Various methods have been used in these systems to add nuance to binary (presence or absence) categories, as a hybrid dimensional-categorical approach in parts of DSM-5, severity ratings and other qualifiers in the 11th revision of ICD, and functional impairment assessment (1, 22). Attention has also been increasingly drawn to the importance of adopting a staging approach to the identification and diagnosis of mental disorder, which offers a compromise between the dimensional and diagnostic approaches and recognises the potential benefits of intervening early and at each stage (1).

The classification manuals that we currently use are provisional and historically contingent, often reflecting *"a power struggle between different branches of psychiatry, each with its own essentialist views of the true nature of mental illness"* (6, p. 8). They are imperfect means of communication and guides to decision-making (13). The range of conditions in the classification systems is wide and diverse, adding up to some hundreds of conditions when various kinds of subtyping are considered. Although reliable and clinically useful, these conditions are often internally heterogeneous and overlapping with each other (23).

Part of the work developed for this doctoral thesis used the Composite International Diagnostic Interview (CIDI) 3.0, the diagnostic interview used by the World Mental Health

Survey (WMHS), which allows the generation of diagnoses according to the criteria of both ICD and DSM systems (24, 25). Diagnoses of 12-month mental disorders followed DSM-IV criteria and included anxiety disorders (panic disorder, generalised anxiety disorder, agoraphobia without panic disorder, specific phobia, social phobia, post-traumatic stress disorder, obsessive-compulsive disorder, separation anxiety disorder), mood disorders (major depressive disorder, dysthymia, bipolar disorder I and II) and alcohol use disorders (alcohol abuse with or without dependence).

Another part of the work developed for this doctoral thesis extracted data from patient clinical records which followed the ICD-9, the clinical coding criteria used in Portugal throughout the period of time of this study. Psychiatric main diagnoses were categorised into mood and anxiety disorders, dementia, substance use disorders, psychosis, and other mental disorders.

1.2. The burden of disease attributable to mental disorders

The proposition that there can be *"no health without mental health"* (26) has been recognised by the World Health Organization (WHO) since its origin and is reflected by the definition of health in the WHO Constitution as *"a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity"* (11, 27). However, mental health has not been given the same importance as physical health, and has been historically largely ignored, neglected, and underfunded (11). Mental disorders are a very important cause of disease burden worldwide (11, 28), and are highly disabling (29), but are perhaps the largest class of diseases for which evidence exists of a substantial discordance between societal burden and health-care expenditures (30).

The ***history of psychiatric epidemiology*** helps to understand the difficulties in applying the clinical and public health principles to the field of mental health (11), and the increased awareness and interest in the burden of mental disorders in the last two decades (31). Epidemiological research into psychiatric disorders, and the knowledge about their prevalence, determinants and impact, has been slow to develop compared with other non-communicable disorders (32). Historically, this has been attributed to difficulties to describe mental disorders and disagreements about thresholds for specific diagnoses (33), to a dearth of reliable assessments and of measures of prevalence and incidence of disorders (33), and to a lack of any notably effective interventions (32). Dohrenwend and Dohrenwend (34) described three overlapping stages in the development of methodology for psychiatric epidemiology (32, 33). In the first phase, from the 1930s to the 1960s, most research was limited to treated cases, using non-standardised diagnoses made by clinicians during their routine work, under the assumption that their clinical training would ensure reliability and validity of diagnoses (35). In the second phase, from the late 1950s and early 1960s, attempts were made to standardise assessments, based upon self-reports of a list of symptoms or general scales of distress (32). The third phase started with the development of consensus diagnostic criteria by the US-UK joint Diagnostic Project, incorporated into the DSM-III and the ICD-8 (32, 36). The introduction of explicit diagnostic criteria reinforced the interest in measuring specific mental disorders in the population (33), and led to the development of fully structured interviews and an agenda for psychiatric research (32).

Several ***diagnostic instruments*** have been used in epidemiological studies for adult populations. The Diagnostic Interview Schedule (DIS) was developed in 1978 and was used in the NIMH Epidemiologic Catchment Area (ECA) Program (30, 33). It was designed for use by trained lay interviewers and allowed diagnosis to be made by computer via a diagnostic algorithm. It has been updated to account for changes from subsequent DSM editions (37). The Composite International Diagnostic Interview (CIDI) was developed in the early 1980s for expanded use in epidemiological studies worldwide, at the request of the US Alcohol, Drug Abuse, and Mental Health Administration and the World Health Organization, and it was subsequently modified to cover DSM-III-R, DSM-IV, and the ICD-10 (30, 32, 37). The first large-scale national survey to administer the CIDI was the US National Comorbidity Survey (NCS), carried out in the early 1990s (30, 37). A revised version of the CIDI was developed for the WHO World Mental Health (WMH) Survey Initiative to address several inconsistencies in assessments, such as to estimate severity, and to compare risk factors, consequences, patterns of disorders, and correlates of service use across surveys (30, 37).

The ***concept of global burden of disease*** was first publicised in a landmark report commissioned by the World Bank (38). The 1993 World Development Report was dedicated to health and designed a measure, disability-adjusted life years (DALYs), to operationalise the definition of disease burden *"by combining a) losses from premature death, which is defined as the difference between actual age at death and life expectancy at that age in a low-mortality population, and b) loss of healthy life resulting from disability"* (38, p. 25).

The publication of the Global Burden of Disease (GBD) study (39) provided comprehensive estimates of the disability-adjusted life years (DALYs) due to more than 100 diseases and 19 risk factors and was a significant methodological advance. In the study, the "burden of disease" (disability-adjusted life years, DALYs) for a given condition was measured by estimating and summing premature death (years of life lost, YLLs) and disability (years lived with disability, YLDs) on a population (39). This approach was surprising by showing the unseen magnitude of psychiatric disease and the central role of disability in determining the overall health status of a population (39). The study showed that the burden of psychiatric conditions had been heavily underestimated: they accounted for almost 11 per cent of disease burden worldwide and were a challenge for both developed and developing countries (39).

Unipolar depression was the fourth leading cause of DALYs worldwide (3.7%), exceeded only by respiratory infections (8.2%), diarrheal diseases (7.2%), and perinatal conditions (6.7%) (28). Of the ten leading causes of disability worldwide, five were psychiatric conditions: unipolar depression, alcohol use, bipolar affective disorder (manic depression) schizophrenia and obsessive-compulsive disorder (39).

The burden of mental and substance use disorders increased since 1990, due to population growth and ageing (40, 41), worsening of social problems and civil unrest (1). GBD 2015 estimated that mental and substance use disorders were the leading cause of YLDs worldwide and the sixth leading cause of DALYs (42). Some authors argue that the burden has been underestimated due to five reasons: the overlap between psychiatric and neurological disorders; the grouping of suicide and behaviours associated with self-injury as a separate category outside the boundary of mental illness; the conflation of all chronic pain syndromes with musculoskeletal disorders; the exclusion of personality disorders in mental illness burden calculations; and inadequate consideration of the contribution of severe mental illness to mortality from associated causes (33, 43). Using published data, these authors estimated that mental illness account for 32.4% of years lived with disability (YLDs) and 13.0% of disability-adjusted life-years (DALYs), instead of the earlier estimates suggesting 21.2% of YLDs and 7.1% of DALYs (43).

Concern about the disparity between mental health service demand and supply led the WHO to launch ***the World Mental Health Survey (WMHS) Initiative*** (30). This initiative was designed to help countries to implement high quality community epidemiological surveys by providing centralised instrument development, training, and data analysis (44, 45), and to focus the attention of health policy makers on unmet needs (30). It is the largest ongoing cross-national series of community epidemiological surveys of mental disorders ever carried out (30, 37). Established in 1998, 28 countries have so far completed WMH surveys to obtain disorder-specific information about prevalence, disability and unmet need for treatment across countries. The WMH surveys examine the wide impact of mental disorders beyond just decrements in health, such as on work and income, on the family, and changes in the life course (28). The results of the WHH surveys documented that mental disorders are commonly occurring, and many begin in childhood or adolescence. The proportion of participants who

met criteria for one or more lifetime mental disorder (including anxiety, mood, impulse and substance disorders) varied from 47.4% in the US to 12.0% in Nigeria (46). 16.7% of respondents [interquartile range (IQR): 10.0–20.7% across surveys] met criteria for a 12-month disorder, with the highest 12-month prevalence found in São Paulo (29.6%) and the lowest in Nigeria (6.0%) (47). Anxiety disorders were found to be the most prevalent class of mental disorders (median lifetime prevalence estimate of 14.3%, and 12-month prevalence estimates of 8.3%), and mood disorders the next most prevalent class (lifetime prevalence estimate of 10.6%, and 12-month prevalence estimates of 5.1%) (48). The proportions of the samples with either a 12-month serious disorder (0.4%-7.7%; IQR, 1.1%-3.7%) or a moderate disorder (0.5%-9.4%; IQR, 2.9%-6.1%) were generally smaller than the proportions with a mild disorder (1.8%-9.7%; IQR, 4.5%-6.4%) (49).

Despite the identification of the magnitude of mental suffering and disorders, global policy makers and funders have so far failed to prioritise treatment and care of people with mental illness (43). 43% of the WHO's Member States have no mental health law, in many countries there is no policy or plan for mental health (50), and the budget allocations for mental health care and research are disproportionately smaller than the burden of mental health conditions worldwide (1,50). Developing countries tend to prioritise the control and eradication of infectious diseases and reproductive, maternal, and child health, whereas developed countries prioritise non-communicable diseases that cause early death (such as cancer and heart disease) above those that cause years lived-with-disability (such as mental disorders, dementia, and stroke) (51). A consequence of this low investment is the very large treatment, care and quality gaps for people with mental disorders. Furthermore, human rights violations and abuses persist in many countries, with large numbers of people locked away in mental institutions or prisons, or living on the streets, often without legal protection (1). Pervasive stigma and discrimination contribute, at least in part, to the lower availability, accessibility, and quality of services to mental health (43).

1.3. Determinants and impacts of mental disorders

A public health approach to mental health seeks to understand causes of disease and disability to inform prevention, treatment, and policy interventions (52). All areas of public mental health require consideration across the entire range of medical, psychological, and social disciplines – the biopsychosocial approach (53) –, as well as a life course perspective, to be able to predict the time of onset of disorders and their consequences (52).

Theories of causation have changed over time. Like most natural phenomena in early human history, mental illness was often attributed to supernatural origins (e.g., demonic possession) (3). In the 2nd century AD, Galen believed that mental health required a balance among the body's purported "four humours": yellow bile, blood, black bile, and phlegm (3). Today, the causal theories are complex, involving such broad factors as genetics, developmental neurobiology, brain structures and various biological processes, early experience, social context, the person's attitude, current life circumstances and events (12). An individual's mental health is considered to be *"the unique product of social and environmental influences, in particular during the early life course, interacting with genetic, neurodevelopmental, and psychological processes and affecting biological pathways in the brain"* (1, p.1).

Recent advances in psychiatric genetic epidemiology and functional and structural neuroimaging are delivering new findings on the genetic architecture and on biological pathways of several mental disorders, as well as new insights on the importance of gene–environment interactions (1, 54). Research in ***psychiatric genomics*** has moved from early family and adoption studies to large-scale studies that identify specific loci or areas of the genome likely to contain disorder-associated gene variants (54). Mental disorders have varying heritability (ranging from 35% to 80%) (55), are polygenic in nature, (i.e. caused by the accumulation of a large number of genes each individually contributing only to a small increase in risk) and share a considerable amount of genetic risk factors (54).

Biological mechanisms at an individual level such as neurogenesis, inflammation, and epigenetics offer plausible explanations for how the social world gets under the skin and affects mental health. First, environmental stressors could affect mental health by influencing gene expression. Epigenetic modifications, *"modifications to DNA (…) which impact on the*

expression of genes without affecting the underlying genetic sequences" (54, p.56), represent an important bridge between underlying genetic vulnerability and dynamic environmental risk factors (54). Early and sustained exposure to stressors can lead to poor mental health outcomes, gene expression changes over the life course in response to a range of positive and negative environmental stimuli, and some epigenetic changes are heritable across multiple generations (1). Second, environmental stressors could affect mental health by raising the concentration of inflammatory cytokines, and several studies have reported that a subgroup of people with mental disorders (e.g., depression and psychosis) have altered inflammatory biomarkers (1). Additionally, environmental stressors could influence the development of the brain regions involved in mental health, and early development (0–2 years of age) is a crucial time for exposure to risk and protective factors and development of resilience (1). The contributions of environmental stimuli to both risks and resilience strengthens the case for action in primary prevention (56–59).

Epidemiologic studies have shown that child or adolescent abuse contributes to mental and behavioural disorders in children (e.g., externalizing behaviours, disruptive behaviour, conduct and academic problems in school, depressive symptoms), and in adolescents (e.g., delinquent behaviour, drug use, academic maladjustment, depression) (59–61), as well as in adults (affective and anxiety disorders, suicide behaviour, substance abuse disorders, and even psychosis), and in general health (59, 62–65). Abuse causes changes in the brain-hormonal systems, and in the function and neuroanatomy of brain locations, such as the amygdale, the hippocampus, the corpus callosum, and the prefrontal cortex, and epigenetic changes may be carried over from one generation to the next, perpetuating a cycle of violence (59, 66).

Future work will provide more important information for the understanding of the biological determinants of mental health and for the design of new intervention strategies. Progress in this area raises important ethical considerations. It may contribute to increased stigma against people with mental illness, with concerns about eugenics and abuse of prenatal genetic testing (54), and it may divert attention and resources away from important social, political, and cultural factors (67).

Mental health and many common mental disorders are shaped to a great extent by ***social determinants***, the conditions in which people are born, grow, live, work, and age, and the health systems they can access (68, 69), which confer advantage or disadvantage from conception to old age (1). The social determinants of mental health encompass five key domains (demographic, economic, neighbourhood, environmental, and social or cultural) that act across distal and proximal levels (1). Distal levels refer to the upstream, structural arrangements of society (e.g., economic opportunities), and proximal levels refer to the way these arrangements are experienced by individuals and families (e.g., living conditions) (1).

There is mounting evidence of the role of social determinants in the aetiology and course of major mental disorders, and in creating health inequities, defined as differences in health that *"are systematic, socially produced (and therefore modifiable), and unfair"* (70, p.2). Social disadvantage is associated with higher risk of mental disorder and lower access to services, and it often follows a social gradient, occurring along a continuum and affecting everyone in the population (15, 68, 69, 71). Low income, low educational attainment, financial strain, unemployment and precarious employment, adverse childhood experiences, lack of social support, perceived discrimination (whether related to ethnicity, immigrant status, sexual orientation, gender and/or occupational status), disadvantaged neighbourhood environment, low social capital, and income inequality have been identified as psychosocial risks that increase the chances of poor mental health (1, 15, 68, 69, 72, 73). Social disadvantage exerts its influence across the entire life course through material and psychosocial pathways (73). Those who are lower in the social hierarchy are more likely to experience chronic stress (adverse social, economic, and environmental conditions), and to have access to fewer buffers (self-efficacy, control, and resilience, as well as emotional support, material support, and information) (71, 73, 74). Cumulative stress, through neurodevelopment and psychobiological pathways related to stress physiology, affects epigenetic, psychosocial, physiological, and behavioural attributes of individuals (1, 69, 71).

Two main mechanisms have been posited in understanding the link between mental illness and poor social circumstances: ***social causation and social selection*** (75). According to the social causation hypothesis, socioeconomic standing has a causal role in determining health or emotional problems. The social selection hypothesis argues that individuals with worse

physical or mental health may "drift down" the socioeconomic hierarchy or fail to rise in socioeconomic standing as would be expected based on familial origins or changes in societal affluence. That is, the social selection model views health problems as exerting a causal influence on social status. Both pathways can occur simultaneously to produce social inequalities in mental health (76).

The convergent model of mental health (1), which recognises the interplay of psychosocial, environmental, biological, and genetic factors, has substantial implications to guide prevention and intervention over the life course (1). Social and economic factors do not only exert influence in a top-down direction; differences in social experience could be partly driven by genetic factors that contribute to individual differences in cognitive, social, and behavioural capabilities (1). From this it follows that we are less likely to find the causes of mental illness in the brain or in the social environment. We are more likely to find causes in the processes through which the brain adapts to the environment (7).

Mental disorders have a clear and pervasive impact on individuals and their families, in suffering, stigma, diminished quality of life, loss of freedom and life opportunities, high levels of social exclusion, and reduced life expectancy (12). They are some of the leading causes of poor health and disability around the world and contribute to further socio-economic inequalities (73), and to a vicious cycle of disadvantage, wider social inequalities and intergenerational transmission of poverty (1, 71, 77). In part, the excess disability due to mental disorders is a result of their early age of onset (29).

Mental disorders are associated with high levels of work disability across a wide range of countries, in terms of both decreased role performance (presenteeism) and total loss of productivity (days out of role) (78), and should be addressed to substantially increase overall productivity (28, 79). Although less prevalent than physical disorders, mental disorders explain a higher share of the disability of a population than physical disorders (80). In Portugal, mental disorders were found to be among the disorders most strongly associated with productivity loss (78).

Mental disorders reduce socioeconomic opportunities for individuals, families, and communities. Most mental disorders present symptom patterns that cause severe impairment on the emotional, cognitive and social level, and may affect the academic or vocational potential (81). Early termination of education affects health, the standard of living, social mobility and upbringing of citizenship in adulthood (82). Studies suggest that, in higher-income countries, prior substance use disorders are associated with termination of education at all ages, and prior anxiety, mood or impulse control disorders with termination of secondary education (28, 82). In the other countries, the association of early-onset mental disorders (i.e., mental disorders with age of onset before the termination of education) and premature termination of education is less consistent, with only prior impulse control and substance use disorders associated with termination of secondary education (28, 81, 82). Personal earnings and household income are substantially lower among people with mental disorders (28, 83), which might be due to low educational attainment, or to difficulties in work performance, impairments in interpersonal functioning, or discrimination (28). In the WMH surveys, common early-onset mental disorders were strongly associated with low current household income, personal earnings, and spouse earnings, after adjusting for education (28, 83). This association was considerably stronger in high-income than upper-middle income countries and not significant at all in low/lower-middle income countries. Epidemiological evidence also shows that premarital mental disorders are associated with lower likelihood of ever marrying, and higher likelihood of subsequent divorce (84), and marital violence (85).

People with mental health conditions are at higher risk of developing physical illness, and have much higher mortality rates (86–89). Conversely, people with a diagnosis of physical illness, especially cardiovascular disease, diabetes and cancer, have a greater chance of developing a mental health problem (86). People with both mental and physical disorders have a much worse prognosis in terms of survival, quality of life, and return to normal everyday life (90). Studies that adjusted for the severity of physical disease still demonstrate strong associations between mental disorder and death, probably due to biological and behavioural mechanisms (90).

1.4. Unmet needs in mental health

The ***treatment gap*** is a parameter that has been used to assess unmet needs in psychiatry, moving beyond the traditional epidemiological measures of incidence and prevalence rates (91). The treatment gap represents the absolute difference between the true prevalence of a disorder and the treated proportion of individuals affected by the disorder, or, alternatively, the percentage of individuals who require treatment in a defined community but do not receive it (29, 91). The treatment gap has narrowed in recent years, but it persists as a public health challenge (92). Several US and European epidemiological studies carried out during the mid 1980s and early 1990s showed uniformly that most mental disorders were untreated (29, 49, 93). The median rates of untreated cases were 32.2% for schizophrenia; depression, 56.3%; dysthymia, 56.0%; bipolar disorder, 50.2%; panic disorder, 55.9%; generalised anxiety disorder, 57.5%; obsessive-compulsive disorder, 57.3%; and alcohol abuse and dependence, 78.1% (29). Those first population-based studies allowed only limited comparisons between countries and did not assess severity and if unmet need for treatment was a major problem, as many mental disorders are mild and self-limiting (49). Data from the WMHS Initiative, and provided by CIDI about disorder severity, impairment, and treatment, shows that the gap between the number of people affected by mental disorders and the number receiving care and treatment remains enormous, even when these conditions are severe and disabling (1, 49, 94–98).

Initial treatment is frequently delayed for many years, from 6 to 8 years for mood disorders and 9 to 23 years for anxiety disorders (92, 99, 100). Evidence-based active treatment rates, defined by a combination of the number of visits and self-reported use of appropriate medications, are low (93). Furthermore, individuals with mental disorders are disproportionately affected by co-occurring general medical conditions, but when they seek general medical care, they are more likely to report problems with access to care (101) and to be dissatisfied with their medical care (101).

Data from the WMHS Initiative showed that the proportion of respondents who received health care treatment for emotional or substance-use problems during the 12 months before the interview varied widely across surveys, from a low of 0.8% in Nigeria to a high of 15.3% in the United States (49). The proportion in treatment was much larger in developed than in less-

developed countries. Even though a meaningful association exists between severity and probability of treatment in virtually all countries, 35.5% to 50.3% of serious cases in developed countries and 76.3% to 85.4% in less developed countries received no treatment in the 12 months before the survey (49). Patients who were male, married, less educated, and at the extremes of age or income were treated less (95). Even when treatment is sought, its quality is poor. Only 27.6% of individuals with a 12-month anxiety disorder received any treatment, and only 9.8% received possibly adequate treatment (98), while only 16.5% of individuals with 12-month major depressive disorder (97) and only a small minority of individuals with substance use disorders (102) received minimally adequate treatment. Recovery-oriented community mental health services are inaccessible to the overwhelming majority of the global population, and inpatient care, including emergency care and long-term social care, is dominated by large institutions or prisons. Poorly planned implementation of deinstitutionalisation leads to premature mortality and the arrest and imprisonment of discharged patients (1).

A more comprehensive measure called ***"the mental health care gap"*** has been proposed to replace the term "treatment gap" (91). This term would encompass the "treatment gap", as currently understood and measured, implying the lack of conventionally understood biomedical and clinical treatments, plus a "psychosocial care gap", implying the lack of psychosocial interventions, and a "physical health care gap", implying the lack of or substandard provision of physical health interventions for persons with mental illness (91). The Lancet Commission on Global Mental Health and Sustainable Development also highlights the importance of addressing the quality gap (i.e., the quality of care received by people with mental disorders) and the prevention gap (i.e., the coverage of interventions that target the risk factors for mental disorders) (1). The Commission argues that the burden of mental disorders can only be reduced through the combined actions of the prevention of mental disorders and the effective clinical and social care of people with mental disorders (1).

Reducing or closing the mental health care gap should be at the top of the public health agenda worldwide. Substantial suffering, disability, and economic costs are consequences of the low rates of treatment, recovery, and care. This gap also negatively impacts the exercise of several human rights protected under international conventions, such as the Universal

Declaration of Human Rights (103) and the UN Convention on the Rights of Persons with Disabilities (CRPD) (104). However, most countries have insufficient data to guide decisions, competing priorities and mental health budgetary constraints (11), and more knowledge of how to provide effective mental health care with limited resources has become imperative. One promising strategy is to emphasise use of treatment resources earlier in the disease courses of affected individuals, before many negative sequelae from mental illnesses develop (105). A crucial first step is to document the current situation regarding unmet need for treatment of mental disorders and its predictors. A second critical step to identify what can be done is to compare the treatment gap across countries with different policy, delivery system, and financing features (105).

2. Mental health care and services

2.1. Barriers to mental health care and treatment patterns in mental disorders

It is important to monitor the use of mental health services and the barriers to care over time to plan appropriate policies and measures to expand access to care, to reduce the mental health care gap and to improve the quality of care (106). Addressing the unmet need for mental health care requires a better understanding both of the process of treatment seeking and of the barriers to service use (92).

Access to health services has been conceptualised as the *"fit between the patient and the health care system"* (107) or as *"a group of factors that intervene between capacity to provide services and actual provision or consumption of services"* (108). Numerous reasons have been imputed for the treatment gap, both supply and demand-side factors (97). Theoretical frameworks for viewing health services utilisation emphasise the importance of (1) the characteristics of the health services delivery system, (2) the changes in medical technology and social norms relating to the definition and treatment of illness, and (3) the individual determinants of utilisation (109).

Regarding supply-side factors, the available data demonstrate that resources to treat and prevent mental disorders remain insufficient, are inequitably distributed, and are inefficiently utilized (110). The most recent data indicate that global median mental health expenditure per capita is US$ 2.5, making government mental health expenditure less than 2% of global median of government health expenditure (50). More than 80% of these funds is allocated to mental hospitals, except in high income countries where less than 43% of spending is on mental hospitals (50). The global median number of mental health workers is 9 per 100 000 inhabitants (50); with 11.9 psychiatrists per 100 000 inhabitants in high-income countries compared to less than 0.1 in low income countries; 23.5 nurses working in mental health per 100 000 in high-income countries and 0.3 in low-income countries; less than 0.25 occupational therapists and speech therapists per 100 000 in all income groups except the high-income group where there are 1.39 occupational therapists and 0.68 speech therapists per 100 000;

and less than 0.1 child psychiatrists per 100 000 inhabitants in all income levels except the high-income group where the number of child psychiatrists is 1.19 per 100 000 (50). High-income countries have a much higher number of hospital beds (52.60 beds per 100 000 inhabitants) compared to the low-income group number of 1.9 beds per 100 000 inhabitants (50). Globally, the median percentage of involuntary admission is 39.2% at mental hospitals and 16% at psychiatric wards in general hospitals (50). Community-based residential care facilities are an almost non-existent resource in low and middle-income countries, compared to 23 residential care beds per 100 000 inhabitants in high-income countries (50). Over 60% of WHO Member States state that discharged patients are seen within a month in more than 50% of cases (50).

Regarding demand-side factors, there is a marked mismatch between prevalence of mental disorder and help-seeking (111). A focus on understanding and encouraging help-seeking behaviour has emerged and become a high priority for research, policy and programme initiatives (111).

Treatment seeking is a complex phenomenon involving motivational, cognitive, social, and cultural factors, as well as interactions between the individual and the treatment system (92).

Over the years, ***theoretical models*** have been proposed to explain treatment seeking and determine the factors that affect it (92, 109, 112–114). Sociological studies of health and illness were among the earliest to assess the concept of treatment-seeking behaviour (92). The sociologist Talcott Parsons saw illness not just as a biological condition, but also a social role conveying rights and responsibilities both for the person in the "sick role" and for the larger society (115). In Parson's view, the "sick role" represents a form of motivated social deviance; the treating professional is viewed as an agent of social control (92). This conception of illness is primarily modelled after acute physical illnesses but drew attention to social factors that may influence treatment-seeking behaviour (92). In the early 1960s, the sociologist David Mechanic described a set of behaviours, termed "illness behaviour", which could explain variations in treatment-seeking behaviour (116). He defined illness behaviour as "*the ways in which given symptoms may be differentially perceived, evaluated, and acted (or not acted) upon by different kinds of persons. (…) In this sense, illness behaviour even determines whether diagnosis and treatment will begin at all*" (116, p. 189). This framework helps to

explain the role that social factors, attitudes, and various personal evaluations play in the treatment-seeking process. Proponents of the social network perspective, such as Charles Kadushin (117) and Bernice Pescosolido (118), highlighted the impact of a person's social circle and social networks on treatment seeking (92). This model recognises the use of mental health services as a dynamic process incorporating sociodemographic and socioeconomic factors; illness characteristics; social networks and social support; coping skills; attitudes towards mental illness and assessment of need; and treatment system-related factors such as quality, accessibility, equity, and previous experience with service use (92).

The socio-behavioural model introduced in the 1960s by Ronald Andersen (figure 1) provides a useful framework to inform analyses of factors that influence health service utilisation. It distinguishes three groups of individual determinants for the use of services: (1) the predisposition of the individual to use services, which represents the social and cultural influences on the decision to seek professional help; (2) the enabling factors that facilitate or hinder access to services; (3) the need factors that are experienced as uncomfortable, necessitating professional help (92, 109, 119, 120). In its current version (121), the model distinguishes between contextual and individual characteristics influencing service utilisation and health-related outcomes. According to this model, *"some individuals have a propensity to use services more than other individuals, where propensity toward use can be predicted by individual characteristics which exist prior to the onset of specific episodes of illness"* (109, pp. 14-15). This *predisposing component* includes demographic (age, sex, past illness) and social structural (education and occupation) factors, personality characteristics, and attitudes, beliefs and values regarding mental health care. *"Even though individuals may be predisposed to use health services, some means must be available for them to do so"* (109, p. 15). These *enabling conditions* make health service resources available to the individual and include geographical (distance) and financial access (insurance, income) to institutions. Finally, *"assuming the presence of predisposing and enabling conditions, the individual or his family must perceive illness or the probability of its occurrence for the use of health services to take place"* (109, p. 16). The *need for care* represents the most immediate cause of health service use and comprises "perceived need" (the patient's perception of care) and "evaluated need" (as assessed by the clinician).

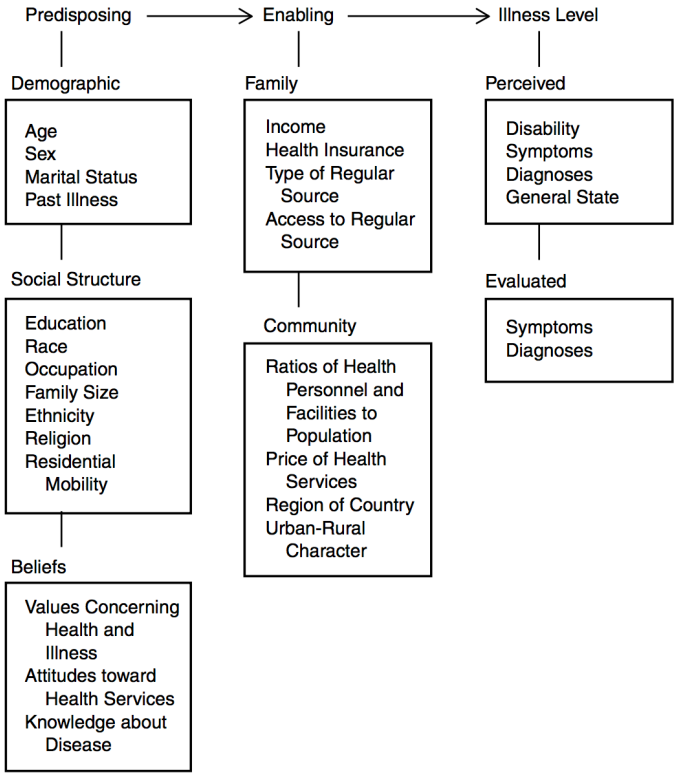

Figure 1 — Andersen's original socio-behavioural model of health service use (Adapted from Mojtabai R, Murray S, Eaton WW, 2019)

Various psychological models have been used to explain variations in help-seeking behaviour, such as the Self-Regulation Model (122), the Health Belief Model (123) and the Theory of Planned Behaviour (124). Fishbein's Theory of Reasoned Action (figure 2) suggests that intention to perform a behaviour depends on beliefs about performing that behaviour and anticipated outcomes, attitude about the behaviour, and subjective norms, a combination of perceived expectations from relevant individuals or groups along with intentions to comply with these expectations (92, 125–127).

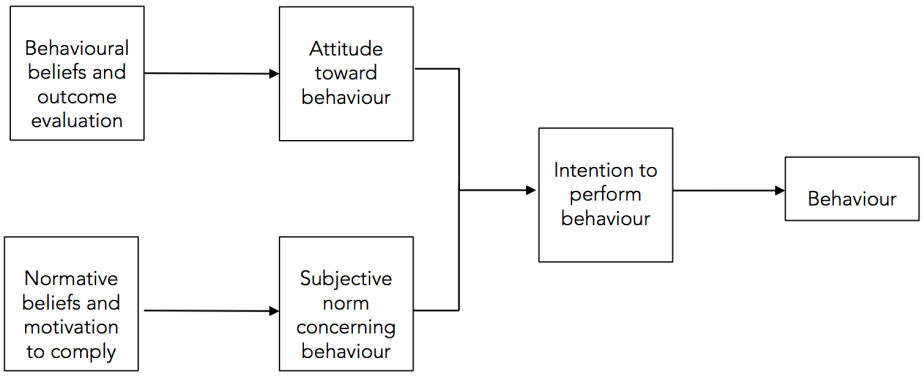

Figure 2 — Theory of reasoned action
(Adapted from Mojtabai R, Murray S, Eaton WW, 2019)

Seeking mental health treatment can be understood as a complex decisional balance between perceived need for mental health care and perceived barriers (figure 3).

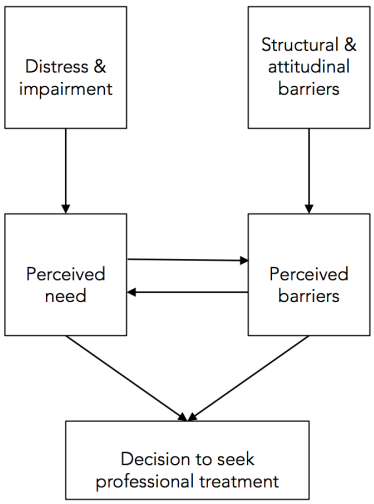

Figure 3 — A decisional model of mental health treatment seeking
(Adapted from Mojtabai R, Murray S, Eaton WW, 2019)

This decisional model of mental health treatment seeking combines psychological factors (attitudes and expectations) and social and structural factors (social stigma, availability of services, financial accessibility), with the important added dimension of perception of need (92). According to this model, ***barriers to appropriate mental health care*** include: (1) ***low***

perceived need for treatment, which is influenced by the severity of distress and the self-evaluation of the mental state; among those with perceived need (2) ***structural factors***, including geographic distance, cost of or limits to care, limited financial resources or insurance coverage, assessments of the economic and personal costs and benefits of treatment seeking; and (3) ***attitudinal factors***, including attitudes toward and previous experiences with the mental health care system, perceptions of norms, social attitudes, and stigma (92, 96). Efforts to increase treatment seeking should target these barriers. Data from the WMH surveys found that low perceived need was the most common reason for not initiating treatment and more common among moderate and mild than severe cases (128). In studies in developed countries, attitudinal barriers have emerged as the more critical type of barrier (129, 130).

It is also essential to have a better understanding of the ***treatment patterns*** and the care delivery of mental disorders in order to improve access, quality and efficiency (131). The collection of reliable and detailed information on inputs (service resources, e.g. beds and staff), processes (the activities of the service, e.g. admissions, consultations and treatment), outcomes (the effect of service delivery on people with mental disorders), and performance (such as safety, effectiveness and access) is fundamental to monitor the functioning of mental health services and to direct the system's efforts and resources towards desirable goals. Indicators are variables that summarise or indicate a given situation and thus can be used to measure change (132).

Mental health care provision changed dramatically in the past 50 years. Hospital treatment had formerly a primary role in psychiatric treatment, but nowadays the critical components of the acute inpatient stay are crisis stabilisation, safety, and a focus on rapid discharge (133). However, hospitalisation still is a critical component of treatment for individuals with serious mental illness and constitutes a major determinant of costs in mental health care (134). Hospital admission statistics (such as length of stay, readmission rates, and number of patients with involuntary hospitalisation) can provide valuable data for planning and policy (135), and have been accepted as index of system performance.

Length of stay (LOS) is defined as the number of days between admission and discharge. Although an ideal LOS for general psychiatric inpatient care for acute psychiatric problems remains uncertain, hospital stays should be *"as brief as possible, arranged promptly and employed only when necessary"* (136, p. 5). Current international recommendations advocate for an early discharge as soon as stabilisation is successful in order to continue disorder management in a less restrictive environment (133), and there has been a significant reduction in length of stay worldwide. In the literature, the median length of stay, considered the most appropriate measure of central tendency for skewed data such as inpatient stay (135), ranges from 5 days (137) to 43 days (138). This great variability of length of hospital stay and the lack of definition of what is "short" or "long" LOS makes it difficult to better understand its impact. Evidence suggests that longer stays may be harmful by isolating patients from their social network, initiating maladaptive processes (hospitalism) (139), having an impact on economy, social functioning and stigma, and institutionalising people in hospital care (140, 141, 142, 143). Long hospitalisations are a sign of poor care coordination or lack of rehabilitation or long-term care in the community (131), and patients commonly report the experience as unpleasant and stigmatising (144). On the contrary, concerns about shorter admissions include the reduction in the quality of hospital care and an increase in readmissions, favouring a "revolving door" pattern (145). Some criticism also stems from the fact that major motivations for early discharges include efforts to contain costs and address spending in hospitals (131, 140, 143, 146), while people's needs are not always met outside of the hospital. A Cochrane review from 2014 concluded that short-stay hospitalisation (of fewer than 28 days) favours social functioning and is unrelated to adverse outcomes or to a "revolving door" pattern of admissions, but data was scarce, outdated, and of low quality (142).

When considering the factors that influence LOS, research suggests an association with 1) the clinical (e.g. psychiatric diagnosis, legal status/compulsory admission, severity, comorbidities), and 2) the sociodemographic characteristics of patients (e.g. age, gender, education), as well as with 3) the characteristics of hospitals or of the health care system (e.g. type of hospital) (139, 146). Systematic reviews that analysed determinants of LOS for adult psychiatric inpatients found that mood and psychotic disorders, female gender, use of restraints during hospitalisation, and larger hospital size were associated with longer LOS, while substance use,

being married, being employed, and discharge against medical advice were associated with a shorter LOS (147, 148).

Readmission is also an indicator of quality and continuity of care (149). Frequent readmissions are characterised according to different frequency criteria (number of readmissions and interval between readmissions), and there is no consensus among the authors on the definition (150–152). Readmission may be detrimental to recovery, and may be associated with the "revolving door" phenomenon, characterised by repeated and frequent psychiatric admissions shortly after discharge.

Factors influencing readmission have been grouped into six categories: 1) the demographic, social and economic characteristics of patients, 2) their clinical characteristics, 3) their clinical history, 4) their attitudes and perception, 5) environmental, social, and hospital characteristics, and 6) admission and discharge characteristics (153, 154). A systematic review found that the most consistently significant predictor of readmission was previous hospitalisation, while a general protective role was attributed to having social support and carer support, as well as to a positive attitude or satisfaction with treatment on the part of the patient (153). Another systematic review suggested that a longer LOS and providing community aftercare were associated with lower readmission rates (154).

Involuntary hospitalisation has been understood as the way to achieve the highest attainable standard of health when a severe exacerbation of illness impairs decision-making capacity (155) and can be lifesaving (156). However, it represents a deprivation of personal liberty (157) and conflicts with the right of autonomy and decision about treatment (158). A central objective of legal frameworks for involuntary hospitalisations and their revisions was to minimise them (159, 160), which is considered a marker of quality of services provided (161, 162), but rates have increased over time in many countries (156, 160, 163–165). There is a global debate on the legitimacy of substitute decision-making and involuntary hospitalisation raised by the United Nations (UN) Convention on the Rights of Persons with Disabilities (CRPD) (104, 166–171). Empirical data suggest that involuntary hospitalisation may be experienced as traumatic and stigmatising (172), lead to low levels of treatment satisfaction (156, 173), have negative effects on patient–therapist relationship (174), lead to long-term avoidance of mental

health care (156, 172, 175), and increase the risk of emergency compulsory re-hospitalisation (163).

The factors influencing involuntary hospitalisation have been classified as 1) individual-related factors, including the sociodemographic and clinical features of the affected persons and the attitudes and clinical competence of their caregivers; 2) system-related factors, including the organisation and resources of mental health care; and 3) area-related factors, including the national legislation, the wider societal perspective and traditions, socioeconomic factors, and economic changes (176).

A systematic review, meta-analysis, and narrative synthesis found that the factors most strongly associated with involuntary psychiatric hospitalisation are a diagnosis of a psychotic disorder and previous involuntary hospitalisation (156). On a population level, a positive dose-response relation was found between area-level deprivation and increased rates of involuntary hospitalisation (156). Meta-analysis results also identified male gender, single marital status, unemployment, being in receipt of welfare benefits, and not owning one's own home as risk factors for involuntary admissions (156). Using narrative synthesis, positive symptoms of psychosis, perceived risk to others, clinician-rated lack of insight, lack of adherence to treatment before hospitalisation, scant social support, and police (vs. family doctor) involvement in admission were found to influence involuntary admissions (156).

More systematised knowledge about the barriers to care and treatment patterns in mental disorders might contribute to the design of strategies, policies and programmes aimed at the reduction of health inequalities and the treatment gap, and to improve the quality of care.

2.2. Organisation of mental health services

Mental health services are the means by which effective interventions for mental health are delivered (177), and the way they are organised has a strong influence on their effectiveness in reducing the burden of mental disorders. The WHO recommendations for mental health care provision are to integrate mental health care in primary care and into all levels of the general health system, to provide care in the community and to create links with other sectors (such as education, labour, welfare, law, and nongovernmental organisations) (11).

Historically, mental health service provision in the more economically developed countries has been divided into three periods (178):

- The rise of the asylum (from around 1880 to 1955), with the construction of large asylums that were far removed from the populations they served.
- The decline of the asylum or "deinstitutionalisation" (after around 1955), characterised by a rise in community-based mental health services that were closer to the populations they served. This process occurred as a result of a reframing of the ethical, social, and administrative considerations related to mental health care, the availability of new drugs, and the growth of the human rights movement (1).
- The reform of mental health services according to an evidence-based approach, balancing and integrating elements of both community and hospital services.

There is a broad consensus on the need to shift from the model of care based on the large psychiatric institutions to modern comprehensive community-based models of care, including acute inpatient units in general hospitals (179). Community-based services are associated with greater user satisfaction, better participation in social life, increased met needs and adherence to treatment (136, 180). Moreover, they promote better continuity of care and more flexibility of services, make it possible to identify and treat early relapses more often and to fight stigma (136).

The ***key principles of the community-oriented mental care delivery*** are (181):

- Accessibility – Mental health services should be available across the lifespan, across all levels of severity and need, and in the communities in which people live, work and receive other services.

- Comprehensiveness – Mental health services should focus on public health needs and should include all facilities and programmes that are required to meet the essential care needs of the populations. The exact mix of services required varies from place to place, depending on social, economic and cultural factors, the characteristics of disorders and the way in which health services are organised and funded. There are five key categories of services (182), all of which are necessary to provide a comprehensive range of local services: a) outpatient/ambulatory clinics; b) community mental health teams; c) acute inpatient care; d) long-term residential care in the community; e) rehabilitation, work, and occupation.
- Coordination and continuity of care – Services must work in a coordinated manner and must address the range of social, psychological and medical care needs, which is especially important for people with severe mental disorders. This requires input from services that are not directly related to health, e.g. social services, nongovernmental organisations, and housing services. One way of addressing the need for continuity of care is to apply the sectoral or catchment area method of organising services.
- Effectiveness – The development of services should be guided by evidence of the effectiveness of particular interventions.
- Equity – People's access to services of good quality should be based on need. All too often the people most in need of services are the least likely or the least able to demand services and are thus likely to be ignored when priorities are being set.
- Respect for human rights – Services should protect the fundamental human rights of the patients and ensure the highest attainable standard of care. Services should also respect the autonomy of persons with mental disorders, empower and encourage such persons and their families to make decisions affecting their lives and use the least restrictive types of treatment.

The World Health Organization proposed a ***multi-level model of mental health services organisation*** (177, 183), using a pyramid framework (figure 4).

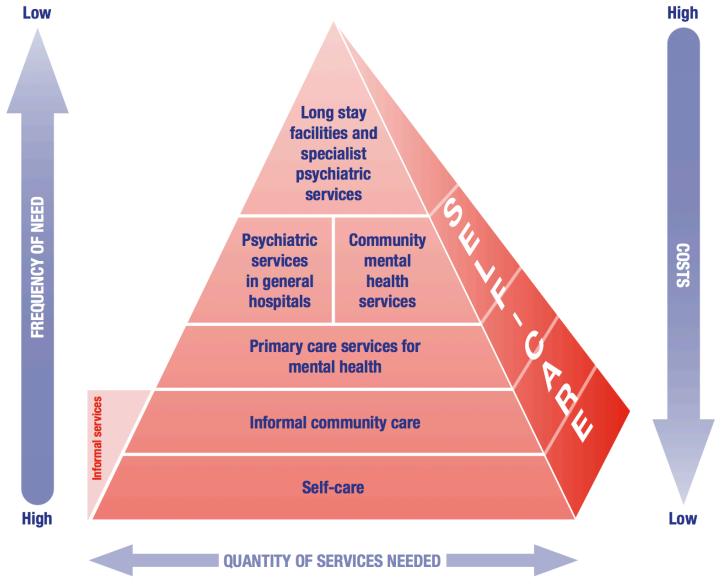

Figure 4 — WHO service organisation pyramid for an optimal mix of services for mental health (Adapted from WHO & WONCA, 2008)

The WHO model is based on the principle that no single service setting can meet all population mental health needs. Support, supervision, collaboration, information-sharing and education across the different levels of care are essential to any system. This model promotes good use of resources, the involvement of individuals in their own mental health care, and a human rights and community-based orientation (184).

As figure 4 illustrates, an important part of mental health care could be self-managed or managed by informal community care.

Self-care is the foundation of the pyramid, and is present and essential across all services and at all levels of the system (184).

Informal community care comprises services provided in the community that are not part of the formal health and welfare system, such as traditional healers, professionals in other sectors such as teachers, police, and village health workers, services provided by non-governmental organisations, community organisations, religious groups, user and family associations, and lay people. Informal organisations should not form the core of care provision, but they are a useful complement to specialised services and should form an alliance with mental health services (184, 185).

Where additional support and expertise are required a more formal network is needed, including, in ascending order, primary care, mental health services, and, for a small minority of patients, long-stay facilities and specialist services (184, 185).

Mental health care provided within ***general primary care services*** is the first level of care within the formal health system. They are less stigmatising to people with mental disorders and are generally easily accessible, acceptable, have reduced costs, and continuity of care is a core element (177, 181). Primary care services include treatment services and preventive and promotional activities delivered by primary care professionals. Essential services at this level include early identification of mental disorders, attention to the mental health needs of people with physical health problems, treatment of common mental disorders, management of stabilised severe mental disorders, and referral of complex cases to specialised services. It is essential that primary care workers are adequately trained and supported in their mental health work, coordinated with a network of services at different levels of care, and have time to conduct interventions and access to psychotropic medication and psychosocial treatment (177, 181, 184). Where there is no integrated primary care, inappropriate referral and additional pressures are put on specialised services, with lack of early identification of severe mental problems (185).

Mental health services include psychiatric services in general hospitals and community mental health services (185).

Mental health services in general hospitals include certain services offered in district general hospitals and academic or central hospitals that form part of the general health system. Such services include psychiatric inpatient wards, psychiatric beds in general wards and emergency departments, consultation-liaison programmes and outpatient clinics. There may also be some specialist services, e.g. for children, adolescents and the elderly. Psychiatric services in general hospitals provide 24-hour medical care and supervision of people with acute worsening of mental disorders that require hospitalisation, as well as for any physical health problems that might arise during inpatient stays (184). Mental health services in general hospitals are usually acceptable to people with mental disorders. Their clinical outcomes can vary, depending on the quality and quantity of the services provided. In many countries, these services provide hospitalisation and outpatient treatment, but they don't provide

comprehensive and continuous care. Psychiatric departments in general hospitals require adequate numbers and training of specialist mental health professionals (psychiatrists, psychologists, psychiatric social workers and psychiatric nurses), and they can act as centres for undergraduate and postgraduate training in psychiatry (177, 181).

Community mental health services provide a wide range of services to meet diverse clinical needs, such as community-based treatment and rehabilitation programmes, day centres, outreach teams and ambulatory services, mobile crisis teams, therapeutic and residential supervised services, and home help and support services (184, 185). Community mental health services need to maintain close working links with other mental health services and with informal care providers working in the community. These services require some staff with a high level of skills and training, although many of their functions can be delivered by general health workers with some training in mental health. They are accessible and have a reduced likelihood of violating human rights (177, 181).

For a small minority of people with mental disorders, ***specialist care*** is required beyond that which can be provided in general hospitals. These services meet very specific needs that require institutional settings and a large complement of properly trained specialist staff.

Specialised psychiatric services include certain outpatient clinics and hospital-based facilities, such as acute and high security units, units for very severe mental disorders or intellectual disabilities and lack of family support, units for children and elderly people, and forensic psychiatry units (177, 181, 184). They are usually tertiary referral centres for difficult to treat patients. If well-funded and well resourced, they provide care of high quality.

Dedicated mental hospitals historically provided long-stay custodial services. Many of these institutions have been restructured and are now part of an organised referral system. In many countries, however, mental hospitals consume most of the available human and financial resources for mental health and are frequently associated with poor outcomes attributable to a combination of factors such as the nature of institutionalised care, a lack of rehabilitative activities, stigma, and violations of human rights (177).

Service planners must determine the optimal mix of these different types of mental health services. Thornicroft & Tansella (186) described a conceptual ***"balanced care model"***, an evidence based, systematic but flexible approach for planning treatment and care for people with mental disorders (1). The following issues are central to the development of this model: 1) services need to reflect the priorities of service users and carers; 2) evidence supports the need for both hospital and community services; 3) services need to be provided close to home; 4) some services need to be mobile rather than static; 5) interventions need to address both symptoms and disabilities; and 6) treatment has to be specific to individual needs (187, 188). The material resources available will severely constrain how this approach is applied in practice. The authors suggested a stepped care model to develop a balance of services in any level of resources (188), model that has been adapted for the Lancet Commission on Global Mental Health and Sustainable Development (1):

- ***In low-resource settings***, the large majority of cases of mental disorder should be recognised and treated by non-specialist providers who are most widely available (primary care, community based health-care staff, and providers in other relevant platforms). Specialist back-up will provide training, consultation for complex cases, and inpatient assessment and treatment of cases that cannot be managed in primary care (step A: Primary care mental health with specialist back-up).
- ***In medium-resource settings***, mental health service provision needs to be strengthened in all of the community and primary health-care platforms, along with the addition of an extended range of community and hospital based secondary and tertiary services, e.g. outpatient clinics, community mental health teams, acute inpatient care, community residential care and forms of employment and occupation. The recognition and treatment of the majority of people with mental illnesses remains a task that falls mostly to primary care, with referral to a specialist when necessary (step B: Mainstream mental health care).
- ***In high-resource settings***, each of the components of the mainstream model can be complemented by additional and differentiated specialised mental health services (step C: Specialised and differentiated mental health services), such as specialised outpatient clinics and community mental health teams, assertive community treatment teams, early intervention teams, alternatives to acute inpatient care, alternative types

of community residential care, and alternative occupation and rehabilitation programmes.

Over the last decades, there has been a change towards a model of more ***integration of mental health care*** into all levels of the general health system and with other sectors. Various models and programmes have been proposed and/or tested for integrating the response of mental disorders with other chronic diseases, because strong links exist between mental disorders and other chronic communicable and non-communicable diseases: they share many causes and consequences, are highly interdependent and tend to co-occur, and are best managed using integrated approaches (90). A model of more integration improves accessibility, reduces fragmentation, prevents duplication of infrastructure and services, is better at meeting people's needs and expectations, and provides opportunities for community involvement in care (181).

Potential pitfalls and lessons learnt include (90):

- Truly integrated care involves more than co-locating health workers with diverse specialties into the same building
- Primary health workers need training, supervision, and support
- Health workers at all levels need access to integrated clinical information systems
- Successful integration requires attention to vested interests and potential resistance from health workers
- Models and programmes must be adapted to local contexts
- Integration takes time and typically involves a series of developments spanning several years

Integration efforts span multiple levels of the health system: at the level of the patient; at the level of the health care organisation; at the level of the community; and at the policy level.

Patient-level integration is grounded in the perspective that people are more than their disorders or health conditions. Patients are placed at the centre of the health-care system,

and services are developed or redesigned to revolve around their needs, coordinated across diseases, settings, and time, via integrated care pathways and multidisciplinary plans (90).

At the level of the health care organisation, numerous models and programmes have been proposed and implemented (90):

- Use of multidisciplinary teams
- Task sharing (previously described as task shifting), which refers to the transfer of some mental health-care responsibilities from more-specialised to less-specialised staff (1)
- Continuity of care between different health workers and system levels, facilitated by common clinical information systems
- Proactive and systematic monitoring and follow-up of patients
- Goal setting and care planning that is shared by health worker and patient
- Systematic patient self-management support, including using e-health technologies
- Links to social care and community services

Forms of integration at the level of the health care organisation include:

- the integration of mental health into primary care settings
- the integration of mental health services into general hospitals
- the development of links between primary care and secondary services based in general hospitals
- the integration of mental health care into existing service delivery platforms for other chronic diseases (e.g., other major NCDs and HIV/AIDS)

Two specific programmes and experiences of successful integration are Collaborative Care and Stepped Care Programmes

Collaborative Care is an evidence-based approach to improve the management of mental disorders and comorbid chronic diseases in primary care settings. Evidence supports its effectiveness in a range of mental disorders (depression, anxiety disorders, post-traumatic stress disorder), and for improving general health outcomes (90, 189).

Key elements of Collaborative Care include (90):

- Systematic identification of those in need
- Multidisciplinary team approach, integrating primary care professionals and those in specialist settings
- Multidisciplinary guidelines, with redesigned systems and care pathways
- Presence of a case manager, with responsibilities for integration of care across comorbid conditions
- Regular, systematic caseload reviews and consultation with a mental health specialist regarding patients who do not show clinical improvement
- Close collaboration and involvement of patients in joint decision-making regarding their care
- Holistic care plans, covering all conditions, and including medications, psychological interventions, and social care, with a referral pathway that allows patients to move easily from one service to another
- Self-management systems
- Regular and planned monitoring using validated clinical rating scales
- Integrated electronic health records for information sharing between different teams

Stepped Care Programmes for the management of mental disorders are typically situated within primary care settings and are closely related to Collaborative Care (90). Within a stepped care approach, patients typically start treatment using a low-intensity, low-cost intervention, and move to a higher-intensity treatment only if necessary. The first step comprises self-delivered interventions for mild to moderate conditions. The second step takes the form of psychosocial therapy delivered in routine care settings or homes by community health workers or lay counsellors for people with more severe conditions. The next step takes the form of a specialist or physician consultation, and intervention options might include medications, more complex psychotherapies, or other physical therapies, for people with severe presentations (1, 90).

The integration of mental health care into other sectors (social services, justice, and housing) is also essential. Community-based interventions are important in the prevention and

management of multimorbid chronic conditions, particularly among marginalised and vulnerable groups (e.g. older people, people from minority groups) (90).

The commitment from the government, and formal policies, legislation, regulations and financing mechanisms that concretise this commitment, are fundamental to the success of the development and implementation of integrated responses (90). ***Policies should be integrated*** across levels of care and care settings, and are more likely be more successful and sustainable when they encompass prevention, promotion, and control strategies, and when they make explicit links to other governmental programmes and community-based organisations (90).

From the treatment of specific mental disorders, we are moving to the provision of care beyond the symptom (1, 187, 190) and to the comprehensive treatment of co-morbid conditions. This change is based on respect for the human rights of individuals with mental disorders, on providing the best possible care, and on the best use of scarce resources (181). However, national and international responses have been generally slow, and fragmented. As a consequence, many people with mental disorders fail to receive appropriate care, and "the journey towards justice for people with mental disorders has only just begun" (1).

3. Mental health in context

3.1. Mental health and economic crises

Economic crises occur cyclically. We can define three major economic crises in the twentieth century – the Great Depression (1929), the Post-Communist Depression (early 1990s), and the East Asian financial crisis (late 1990s) (191) –, and two in the twenty-first century – the Great Recession (2008) and the Coronavirus Recession (2020).

The ***financial crisis that started in 2008*** was accompanied by recessions (two consecutive quarters of decline in a country's real gross domestic product) (192) in many countries worldwide, with housing bubbles, bankruptcies, credit drought, and stock market declines (193). The crisis seriously hit Europe, causing increases in national debt levels, rising interest rates, decreased GDP, and sustained high unemployment, particularly youth unemployment (193, 194). As a result, in 2012, 10.1% of the European population were unemployed, and 23.9 % were at risk of poverty or social exclusion, compared with 6.9 % and 23.0 % in 2008, respectively (195, 196). Young adults and those least educated were particularly vulnerable to losing their jobs, with a detrimental long-term effect on future job and earning prospects (197). In 2012, 22.6% of the European population with less than 25 years old were unemployed, compared with 15.1% in 2008 (198). Employment conditions also became more precarious, with more part-time jobs and short-term contracts (199).

The ***COVID-19 pandemic*** is a global health crisis without precedent in living memory, that is changing most aspects of our lives, and is causing enormous damage to health, jobs and well-being (200, 201). To contain the spread of the virus and save lives, governments throughout the world imposed lockdowns, physical distancing, and other containment measures. Activity in many sectors was shut down completely and mobility curtailed (200, 201). These necessary measures have succeeded in slowing the spread of infections and reducing the death toll but have resulted in large short-term economic disruption. The global economy is now experiencing the deepest recession since the Great Depression in the 1930s, with GDP declines of more than 20% in many countries during shutdowns and a surge in unemployment (200, 201).

There is a broad consensus that periods of economic recession are associated with poor mental well-being and a higher prevalence of mental health problems, including common mental disorders, substance-related disorders, and suicidal behaviour (191, 202–208). These negative outcomes can be particularly relevant in already vulnerable population groups, such as people with mental disorders, children, elderly, migrants, uneducated, ethnic minorities, or social/economically deprived (191, 205), and could accelerate cumulative disadvantages and widen socioeconomic inequalities in health (193, 209, 210). During these periods, many people may experience an acute exacerbation of a chronic condition, others the onset or persistence of mental disorders or behavioural problems (191). Many of the adverse effects on mental health can be pervasive or manifest fully long after the onset of the crisis (191).

As previously described in section 1.3, mental health and many common mental disorders are shaped to a great extent by social and economic conditions, health and welfare systems, labour markets, and public policies (68). Economic crises may affect mental health either by increasing risk factors, such as unemployment, income decline, financial strain, unmanageable debts, job-related problems, inequalities, lack of social connectedness, and housing instability (191, 205), or by weakening protective factors, such as job security and welfare protection programmes (191, 211). Of particular importance is the finding that economic recessions may intensify the social exclusion of people with mental disorders (77, 212).

The ***impact of economic crises on the use of mental health care*** is expected to be mixed. On the one hand, demand for mental health is likely to increase. On the other hand, mental health systems may not meet this growing need, due to reduced availability (e.g., cuts in human resources) and affordability (e.g., out-of-pocket payments) of services (213–216). Most findings suggest that during recessions prescriptions for psychotropic drugs rise (217, 218). Martin-Carrasco et al. (191) concluded that the treatment gap increases in these periods, probably due to the lack of accessibility to services, the austerity measures, and the increased stigma towards people with mental illness.

During economic crises it is essential to take action to prevent the rise of health and social inequalities and to promote the resilience of individuals and communities. Crises can also offer an opportunity for change, providing the impetus and the political will to address structural needed changes in mental health-oriented actions postponed for long (191, 211).

Protecting the mental health of populations during economic crises can only be achieved by marshalling the policies of multiple sectors, rather than relying solely on the health sector. Policy recommendations suggest that the development of social protection programmes such as active labour market programmes, social support systems, family support programmes, debt relief programmes, and protection for housing instability is strongly needed (191, 213). The response of the health system is also critical. Despite financial constraints, universal coverage of mental health services and equitable access to good quality mental health care are core values that must be ensured (211). Mental health care reforms that better meet the needs of the population should be implemented, and models of care that are closer to the populations and that facilitate the early identification of mental health problems and the implementation of integrated interventions are particularly useful (211). Creating or deepening a network of community-based mental health services, promoting the integration of mental health in primary care, and strengthening the coordination with social care are important aspects of the restructuring of mental health care that will improve access to mental health care, emphasise illness prevention and health promotion, and reduce stigma (211).

3.2. Mental health in Portugal

Portugal has a population of 10.3 million people (219). The country has undergone remarkable changes since the establishment of a democratic regimen, in 1974, as the creation of a welfare state has tackled material deprivation and increased access to healthcare (220), and the health of the Portuguese population has improved considerably since then (221). However, there are still many areas of population vulnerability, including child poverty, unhealthy behaviours (e.g. motorcar accidents, substance abuse), a relatively unhealthy ageing population (221), and health inequalities. Portugal is one of the most unequal countries in the European Union (in 2018, the Gini coefficient was 32.1, compared to the European Union average of 30.8) (222), with relatively low levels of income (in 2018, the median equivalised net income was 9,346€, compared to the European Union average of 17,468€) (223), and expenditure on social protection (in 2018, the total general government expenditure on social protection was 17.2% of GDP, compared to the European Union average of 18.6%) (224). Portugal has an ageing population, a consequence of increased life expectancy, declining birth rates and a negative migratory balance, and chronic diseases are responsible for most deaths, disability and health care use (225). In 2018, average life expectancy at birth was 81.5 years, slightly higher than the European Union average (81 years). However, significant inequalities persist across genders (average life expectancy is 78.3 years for men and 84.5 for women) (226) and across socio-economic levels (227). In 2018, the healthy life years at age 65, an indicator that measures the number of years that a person at age 65 is still expected to live in a healthy condition, was 7.3 years (7.8 years for men and 6.9 years for women), compared to 9.9 in the European Union (228).

The National Health Service (NHS) was established in 1979 as a tax-financed system, and delivers universal, equitable, general, and mostly free health care services to all citizens. Planning, organising, and regulating the health care sector is carried out centrally by the Ministry of Health and, at the regional level, by five regional health administrations. The Portuguese health sector is also composed of private health care providers, mainly clinics and hospitals (229). The financing of the health care system in Portugal is mainly public, but a significant share of the total financing of health expenditure is private and includes out-of-pocket and co-payments, health care subsystems, and private voluntary insurance. Actually,

the Government's responsibility for global health financing in Portugal is lower than in the European Union average (in 2018, the total general government expenditure on health was 6.3% of GDP, compared to the European Union average of 7.1%) (230).

The ***National Epidemiological Study on Mental Health***, part of the World Mental Health Survey Initiative, was the only survey on psychiatric morbidity with a nationally representative sample conducted in the country, and assessed the mental health of the Portuguese population before the economic recession (231). The results indicated Portugal as the European country with the second highest prevalence of 12-month mental disorders (22.9%), only surpassed by Northern Ireland, and quite different from other Southern European countries, such as Italy (9.7%) and Spain (8.8%). Findings also showed that mental disorders account for a substantial proportion of all role disability in the Portuguese population, with the population attributable risk proportion of mental disorders accounting for 20.2% of days out of role (78), a higher societal impact than in other high-income countries (16.0%) (79). The National Epidemiological Study on Mental Health found a significant treatment gap, ranging from 81.8% of untreated cases in mild disorders to 33.6% in severe disorders. The results also raised concern on the delays in starting treatment, that were found to be of 2 years in panic disorder, 3 years in generalized anxiety disorder and dysthymia, 4 years in major depression, and 6 years in bipolar disorder. Data also confirmed the high consumption of psychotropic drugs in Portugal: 24.3% of women and 9.8% of men reported a 12-month use of benzodiazepines, the highest in Europe for women (232) and 13.2% of women and 3.4% of men reported 12-month use of antidepressants (231).

In modern times Portugal has experienced two cycles of reform of ***mental health policy and organisation of services*** (233, 234). The first (1963-1990), with Law 2118, introduced primary care liaison and district mental health centres, and was followed by a period of retrenchment during which the role of the psychiatric hospitals was strengthened and mental health centres were abolished. The second started in 1998, with the mental health law (Law 35/98 and Decree Law 36/99), which established the rights of service users, regulated involuntary hospitalisation, and introduced the principles of community-based services and psychosocial rehabilitation, to be provided by multi-disciplinary teams. Progress was limited following the introduction of the legislation.

However, mental health was considered a health priority and a National Mental Health Plan (2007-2016) was produced, extending to 2020. The National Plan supports a national network of local mental health services that are community-based, supported by District General Hospitals and responsible for the local population. Additionally, it proposes some regional services for specialised care, such as eating disorders and forensic care. Special emphasis is given in the Plan to the need for cooperation across sectors. First, primary care should be supported by mental health services to enable family doctors to identify, diagnose and treat most patients with common mental health problems. Second, residential and vocational services should be developed by local authorities and intensive support in community settings for patients with severe mental health problems should be provided to make deinstitutionalisation possible. Finally, the National Mental Health Plan highlights the need to develop mental health services for vulnerable groups that require specialist interventions, such as child and adolescent services and old age services, both relying heavily on partnerships with other sectors (234).

Due to a lack of political momentum and to inadequate funding, this plan has yet to be implemented. Community mental health teams for a defined catchment area have not been developed and the liaison of primary health care workers with mental health specialists is insufficient. The network of comprehensive community-based services is still well below the needs, as well as the coordination with other services providing rehabilitation programmes in the same catchment area. When compared with other European countries, the number of mental health workers is still low: in 2013, there were 8 psychiatrists per 100 000 inhabitants, 8 nurses per 100 000 inhabitants, 2.8 psychologists per 100 000 inhabitants, 1.2 social workers per 100 000 inhabitants, and 0.8 occupational therapists per 100 000 inhabitants (180).

Meanwhile, the Great Recession started and Portugal was particularly affected. After several years of slowdown of its economy, GDP decreased more than 6% between 2011 and 2013, with mounting deficits (9.9% of GDP in 2010), and public debt (129% of GDP in 2013) (235). The international economic crisis resulted in a sudden and sizable increase in financial market interest rates, and the Portuguese State faced a public debt crisis (221, 236). In April 2011, the Portuguese government requested an emergency €78 billion bailout package from the European Commission, the International Monetary Fund, and the European Central Bank. As

a counterpart, Portugal signed the "Memorandum of Understanding", which consisted in a compromise to implement several reforms aimed at reducing public expenditures (236). In the health care sector, the austerity measures included reductions in public spending on pharmaceuticals, cuts to the salaries of health workers, and increased and expanded co-payments, with exemptions to protect those most economically deprived, the unemployed and other vulnerable groups (237). These measures increased the barriers to access to health care, as well as divestments in equipment and infrastructures (229). During the crisis, the unemployment rate increased from 7.7% in 2008 to 15.9% in 2012 and was 16.7% in mid-2013 (221). In mid-2012, one-fifth of Portuguese households were affected by unemployment. The percentage of unemployed individuals not receiving unemployment benefits was 73.6% by the end of 2012 (221).

Since 2016, the country has partly recovered financially. However, we are now living the Coronavirus Recession, whose effects are yet to be fully known. GDP declined by 7.6% in 2020 (238) and public debt is expected to increase to 138% of GDP by the end of 2021 (200) and to 139% in 2022 (201).

It is imperative to document the treatment gap in Portugal, predictably worsened by the economic crises, and to understand the impediments and predictors of the use of mental health care to guide the mental health service development, but research is scarce.

This doctoral thesis aims to contribute to reduce this gap.

PART II – ORIGINAL RESEARCH

1. Research aims and hypothesis

The aim of this doctoral thesis is to contribute to a more systematised knowledge about the use of mental health care in Portugal, and to a better understanding of the impact of economic crises on the use of mental health care. With this research aim in mind, four research objectives were defined:

1. To summarise the empirical evidence on the association between periods of economic crisis and the use of mental health care, and to characterise the most vulnerable groups of the population to increased treatment gap.
2. To describe the use, patterns and barriers to mental health treatment among adults with mental disorders in Portugal.
3. To evaluate the impact of an economic crisis on the patterns of care in Portugal.
4. To identify the individual and contextual factors that influence patterns of use of acute psychiatric inpatient services in Portugal, before and during an economic crisis.

This research project was organised in three main phases.

1.1. First phase of research

The first specific objective of research was addressed in a systematic literature review of relevant publications (1990-2018) reporting on the associations between periods of economic crisis and the use of mental health care. This systematic literature review intended to 1) describe what is known about the impact of economic crises on the use of health facilities and psychotropic drugs, 2) identify the patterns of demand for care of different groups during economic crises, and 3) gather information on policies, plans and interventions that proved to be effective and particularly useful to minimise increasing social inequalities in mental health during economic crises. It was hypothesised that periods of economic crisis may increase the demand for mental health care, particularly at the general care level, and increase the unmet need for specialised care. It was also hypothesised that an increased treatment gap would disproportionally affect the most vulnerable socioeconomic groups.

One original paper was produced during this phase:

- Impact of economic crises on mental health care: a systematic review.

1.2. Second phase of research

The second research objective was to examine the use, patterns and barriers to mental health care among adults with mental disorders in Portugal. It was hypothesised that access and type of barriers to mental health care may be associated with sociodemographic and clinical factors.

One original research paper was produced to address this objective:

- Barriers to mental health services utilisation in Portugal – results from the National Mental Health Survey.

The third research objective was to evaluate the impact of an economic crisis on the patterns of care, namely on the use of psychotropic drugs. It was hypothesised that the Great Recession might be associated with a higher use of psychotropic drugs, that may vary according to gender and age.

One original research paper was produced to address this objective:

- How did the use of psychotropic drugs change during the Great Recession in Portugal? A follow-up to the National Mental Health Survey.

1.3. Third phase of research

The fourth objective of research was to identify the individual and contextual factors that influence patterns of use of acute psychiatric inpatient services, specifically length of hospital stay, readmission, and involuntary hospitalisation, before and during an economic crisis. It was hypothesised that the use of acute psychiatric inpatient services may be associated with individual sociodemographic and clinical factors, and with contextual factors.

Two original research papers were produced during this phase:

- Factors associated with length of stay and readmission in acute psychiatric inpatient services in Portugal.
- Factors associated with involuntary psychiatric hospitalisation in Portugal.

2. Materials and methods

The three research phases used distinct methodological approaches and data from different studies, and the materials and methods of each research phase will be described sequentially in this section.

The first phase followed the PRISMA guidelines for reporting systematic reviews.

The second research phase used data from two sources:

1. World Mental Health Survey Portugal
2. National Mental Health Survey Follow-up

The third research phase used data from one source:

1. SMAILE project - Study on Mental Health - Assessment of the Impact of Local and Economic Conditioners

2.1. Research phase 1

In the first research phase, a systematic literature review on the association between periods of economic crisis and the use of mental health care was carried out, following the PRISMA guidelines (239).

2.1.1. Search strategy and selection of articles

The protocol was registered in the International Prospective Register of Systematic Reviews on 28 June 2017 (PROSPERO, registration N° CRD42017069284). Comprehensive literature searches of MedLine (through Ovid and Pubmed), Scopus, Cochrane Database and Open Grey Repository databases were conducted, combining three sets of keywords: (1) economic crisis; (2) use of mental health; (3) mental health problems. The reference lists of the primary studies selected as well as recent reviews in the field were checked. In addition, expert authors were contacted to identify any additional articles.

Studies were selected according to specific inclusion criteria (table 1). Study selection was done in duplicate (DMR and MS), and a third reviewer participated where disagreements arose (GC). The inter-agreement between reviewers measured with the κ statistic was excellent (κ = 0.81; 95% CI 0.65–0.97).

Aspects considered	Inclusion criteria	Exclusion criteria
Population	Adult population with any mental health problem/disorder; countries that faced crises since the 90's	Population not accessing health care for mental health problems; population with a specific medical condition
Outcome	Access or use of mental health care (visits, admissions, lengths of stay, emergencies); use of psychotropic medication; referral to specialised psychiatric care	Impact on services (budget, organisational, financial); focused on cost; impact only on mental health prevalence
Design	Observational studies, including ecological, cross-sectional, case-control and longitudinal studies	Randomised controlled trials, systematic reviews, meta-analysis, editors' letters, clinical cases, protocols, qualitative studies
Language	All	None
Setting	Primary care; psychiatric/mental health outpatient services; psychiatric/mental health inpatient services	Non-psychiatric care; residential care

Table 1 — Inclusion and exclusion criteria for the studies

2.1.2. Data synthesis

A data extraction sheet was developed, pilot tested on three randomly selected studies that had been included and refined herein. The main characteristics of these studies were rigorously extracted by MS and verified by a second reviewer (DMR). Any discrepancies were resolved by discussion between the two reviewers. In the event of disagreement, a third reviewer (GC) was consulted.

2.1.3. Risk of bias in individual studies

Quality assessment was performed independently in duplicate (DMR and MS), and a third reviewer participated in cases of disagreement (GC). The quality of the studies was assessed using the Quality Assessment Tool for Observational Cohort and Cross- Sectional Studies (240), which assesses 14 items, rating quality as poor, fair or good.

2.2. Research phase 2

The second research phase addressed the second and the third research objectives. For the second research objective, data from the WMHS Portugal were used. For the third research objective, data from the WMHS Portugal and the National Mental Health Survey Follow-up were used.

2.2.1. World Mental Health Survey Portugal

The National Mental Health Survey was carried out with a nationally representative sample of the Portuguese population in 2008/2009 as a part of the World Mental Health Survey (WMHS) Initiative, aiming to evaluate the prevalence, the correlates, the impact and the treatment patterns of mental disorders (44, 231, 241). The Portuguese mental health survey was a cross-sectional study based on stratified multistage clustered area probability household sample of the usually resident, non-institutionalized Portuguese-speaking population of Continental Portugal aged 18 or above, residing in permanent private dwellings (241).

The survey was administered by trained lay interviewers on a face-to-face setting, using the computer-assisted personal interview (CAPI) methodology. Informed consent was obtained before the interviews and all procedures were approved by the Ethics Committee of Nova Medical School, Nova University of Lisbon (ref. 10/2008). The interview was divided in two parts. Part I was administered to all respondents (n=3849) and assessed core mental disorders. All Part I respondents who met criteria for any DSM-IV disorder plus a probability subsample of 25% randomly selected participants who did not meet these criteria were administered Part

II (n=2060). Part II included the assessment of additional mental disorders, correlates and consequences of mental disorders, self-reported chronic conditions and use of services.

Two different weightings were implemented. The Part I data were weighted to adjust the differential probabilities of selection between and within households, non-response bias and discrepancies between the sample and the sociodemographic and geographic distribution of the Portuguese census population. The Part II data were additionally weighted to adjust for the under-sampling of Part I respondents who did not have any core disorders and to adjust for residual discrepancies between sample and population distributions on a range of sociodemographic and geographic variables, making the weighted Part II sample equivalent to the Part I sample in terms of prevalence of core disorders and equivalent to the population in terms of the sociodemographic and geographic variables used for population weighting. Further details regarding the study design and fieldwork procedures can be found elsewhere (241).

This study used the Part II sample, and all analyses were based on Part II weights that allow results to be extrapolated to the total population (78, 241).

2.2.1.1. Measurements to address the second research objective

12-month mental disorders

The presence of a mental disorder in the previous 12 months was assessed with Version 3.0 of the World Health Organization Composite International Diagnostic Interview (CIDI), a fully structured interview adapted to the Portuguese language by a group of bilingual experts (241).

DSM-IV criteria were used in generating diagnoses, and the 12-month mental disorders considered included anxiety disorders (panic disorder, generalized anxiety disorder, agoraphobia without panic disorder, specific phobia, social phobia, posttraumatic stress disorder, obsessive-compulsive disorder, separation anxiety disorder), mood disorders (major depressive disorder, dysthymia, bipolar I and II disorders), and substance use disorders (alcohol abuse and dependence).

Use of services

Treatment in the last 12 months was assessed by asking respondents if they saw any of a long list of professionals either as an outpatient or inpatient for problems with emotions, nerves, mental health, or use of alcohol or drugs. The list included mental health professionals (e.g., psychiatrist, psychologist), general medical professionals (e.g., general practitioner, occupational therapist), religious counsellors, and traditional healers (e.g., herbalist, spiritualist).

Barriers in the use of services

Participants who reported no use of services were asked if there was a time during the past 12 months when they might have needed to seek professional help for mental health problems. Participants who did not think they needed help or thought they needed help for less than four weeks were classified as "low perceived need." Respondents with "perceived need" were subsequently asked about structural and attitudinal barriers.

Individual sociodemographic and clinical characteristics

Sociodemographic characteristics included age (evaluated as a continuous variable), gender, marital status (married; separated, divorced or widowed; single), educational level [none or primary (≤4 years); basic (≤9 years) or secondary (≤12 years); university], income (two categories were constructed based on the median: low or low-average; high-average or high), and employment status (working or student; unemployed; retired or other).

Clinical characteristics included disability and presence of any physical disorder. Disability was assessed in the participants of the Part II sample with the modified version of the World Health Organization Disability Assessment Schedule (WHODAS-II) for the WMHS Initiative. Difficulties in the 30 days before interview were evaluated in the following life domains (242):

1. Cognitive domain - understanding and communication
2. Mobility domain - moving and getting around
3. Self-care domain - personal hygiene, dressing, eating and ability to live alone
4. Social interaction domain - interaction with other individuals
5. Time out of role domain - difficulties carrying out work or normal activities

The domains scores range from 0 to 100, with higher scores meaning greater disability. A global disability score aggregating all domains scores was obtained and dichotomized at the 90th percentile to indicate the presence or absence of substantial disability (242).

Covariates

Covariates included age (evaluated as a continuous variable), gender, and presence of any physical disorder in the 12 months before interview. Physical disorders were self-reported with a standard chronic disorder checklist. Reports based on such checklists have been shown in previous methodological studies to have moderate to good concordance with medical records (243, 244). The physical disorders considered were arthritis, cancer, cardiovascular disorders (heart attack, heart disease, hyper-tension, stroke), chronic pain disorders (chronic back or neck pain, other chronic pain), diabetes, migraines or other frequent or severe headaches, insomnia, neurological disorders (multiple sclerosis, Parkinson's disease, epilepsy or seizures), digestive disorders (stomach or intestinal ulcers, irritable bowel disorder) and respiratory disorders (seasonal allergies, asthma, chronic obstructive pulmonary disease, emphysema).

2.2.1.2. Measurements to address the third research objective

Use of psychotropic drugs

The use of any psychotropic drugs in the previous 12 months, regardless of the presence of a clinical diagnosis, was evaluated by asking participants the following question: "Did you take any type of prescription medicine in the past 12 months for problems with your emotions, substance use, energy, concentration, sleep, or ability to cope with stress? Include medicines even if you took them only once". If so, participants were requested to indicate which of the medicines they had taken from a long list that included 1) antidepressants, 2) anxiolytics, and 3) hypnotics/sedatives.

Individual sociodemographic characteristics

Participants' sociodemographic characteristics included gender, age [assessed as a continuous variable and dichotomized into two categories (18–49 years of age versus ≥50

years of age at the baseline)], and educational level [(assessed as the number of years of educational attainment at the baseline (continuous variable)].

Covariate

The multivariate models were adjusted for education, assessed as the number of years of educational attainment at the baseline.

2.2.2. MH Crisis Impact Study: National Mental Health Survey Follow-up

The MH Crisis Impact Study was conducted in 2015/16, under the Public Health Initiatives Programme (PT06), and financed by the EEA Grants Financial Mechanism 2009-2014. The study included a follow-up epidemiological study of the WMHS Portugal, and its main objectives were to obtain a better understanding of the effects of the economic crisis on the mental health of the Portuguese population, and to propose new policies, programmes and interventions aimed at the reduction of health inequalities and mental health problems linked with the crisis.

Fieldwork procedures were similar to those of the WMHS. All individuals with a mental disorder diagnosis in T0 and a 20% random sample of those without a diagnosis that had participated in Part II of the survey were recruited to the follow-up survey (n=911). A new weighting was created based on the Part II weighting of the previous survey, to adjust for the differential probability of selection to the follow-up (77).

Informed consent was obtained from participants and all procedures were approved by the Ethics Committee of the Nova Medical School, Nova University of Lisbon (ref. 16/2015/CEFCM).

2.2.2.1. Measurements to address the third research objective

Use of psychotropic drugs

The use of any psychotropic drugs in the previous 12 months was also evaluated at T1 by asking participants the following question: "Did you take any type of prescription medicine in the past 12 months for problems with your emotions, substance use, energy, concentration,

sleep, or ability to cope with stress? Include medicines even if you took them only once". If so, participants were requested to indicate which of the medicines they had taken from a long list that included 1) antidepressants, 2) anxiolytics, and 3) hypnotics/sedatives.

2.2.3. Statistical analysis

To address the second research objective, relative and absolute frequencies, means and standard deviations were used for descriptive analysis. Four multiple logistic regression models were performed to evaluate the association between sociodemographic and clinical variables and having received treatment (yes/no) or barriers to treatment (low perceived need, attitudinal barriers, structural barriers) among the participants with any 12-month mental disorder. Analyses were performed using the Statistical Package for the Social Sciences (IBM® SPSS® Statistics) version 21.0.

To address the third research objective, frequency tests and McNemar's tests for comparing marginal proportions were used for descriptive and exploratory analyses. Multiple Generalised Estimating Equations (GEE) models were performed to estimate the population odds of consuming psychotropic drugs. Odds ratios (OR) were estimated and interpreted at specific levels of the main effects and of interaction terms considering differences in psychotropic drugs use in both periods according to gender and age. Data analysis was conducted using R version 3.5.1. The R package geepack was used to fit the GEE models (245, 246, 247).

Estimates were weighted according to the characteristics of the study, as explained in section 2.2.1. A significance level of $\alpha = 0.05$ was used throughout the analysis.

Table 2 summarises the research papers conducted in the research phase 2.

Research paper number	Aims	Hypothesis	Data Source	Measurements	Analysis
Original research (paper n° 2)	To describe the use, patterns and barriers to mental health treatment among adults with mental disorders in Portugal.	Access and type of barriers to mental health care are associated with sociodemographic and clinical factors.	WHMS Portugal	Independent variables: marital status, educational level, income, employment status, 12-month mental disorder, and disability Dependent variable: 1) any health treatment in the last 12 months, and 2) barriers to use of services (low perceived need, attitudinal barriers, structural barriers) Covariates: Age, gender, and presence of any physical disorder	Descriptive statistics and logistic regression models
Original research (paper n° 3)	To evaluate the impact of the economic crisis on the patterns of care, namely on the use of psychotropic drugs.	The use of psychotropic drugs increased between 2008/09 and 2015/16 and varied according to gender and age.	WHMS Portugal National Mental Health Survey Follow-up	Independent variables: gender and age Dependent variable: Use of any psychotropic drugs in the previous 12 months Covariates: Education	Descriptive statistics and Multiple Generalised Estimating Equations models with interaction terms

Table 2 — Characteristics of the research papers conducted in the research phase 2

2.3. Research phase 3

The third research phase addressed the fourth research objective and used data from the SMAILE project.

2.3.1. SMAILE project - Study on Mental Health - Assessment of the Impact of Local and Economic Conditioners

The SMAILE project was conducted in 2013/2015 and funded by the Foundation for Science and Technology (PTDC/ATP-GEO/4101/2012). The main objective of the study was to assess the effect of environmental and territorial determinants on mental health and on the use of mental health services in times of social and economic crisis, and its specific objectives were a) to study the associations between the evolution of contextual characteristics of some Portuguese municipalities in the last 10 years, and psychiatric morbidity and use of mental health services in these municipalities during the same period; b) to understand how the mental health of individuals is affected by socioeconomic crises, depending on community support, social capital and urban planning; and c) to propose changes to the physical and social environment that may promote mental health and reduce psychiatric morbidity of the populations during crises.

Mental health of the populations was assessed using several indicators: 1) Number and characterisation of deaths by suicide by municipality (2010-2012 and 2000-2002); 2) Diagnosis Related Groups for mental disorders by municipality (2010-2012 and 2000-2002); and 3) Socioeconomic and clinical characterisation, through review of medical records, of inpatient and outpatient users with at least one contact with the psychiatric departments in 2002, 2007 and 2012. The objective was to assess the use of mental health services in times of economic crisis, consequently, the years were selected to represent periods before the economic crisis (2002 and 2007) and the period of economic crisis (2012).

This research was conducted in the Metropolitan Areas of Lisboa and Porto and the region of Baixo Alentejo, in the catchment areas of five psychiatric departments: Centro Hospitalar Psiquiátrico de Lisboa, Hospital de Magalhães Lemos EPE, Centro Hospitalar de Lisboa

Ocidental EPE, Hospital Professor Doutor Fernando Fonseca EPE, and Unidade Local de Saúde do Baixo Alentejo EPE (figure 5). The study areas included consolidated urban areas (Lisboa and Porto), recent urban growth areas with low socioeconomic status characteristics - high levels of unemployment and low levels of education (Amadora), recent urban growth areas with high socioeconomic status characteristics - low levels of unemployment and high levels of education (Oeiras, Póvoa de Varzim and Vila do Conde), and rural areas (Aljustrel, Almodôvar, Alvito, Barrancos, Beja, Castro Verde, Cuba, Ferreira do Alentejo, Mafra, Mértola, Moura, Ourique, Serpa, and Vidigueira) (figures 6 and 7).

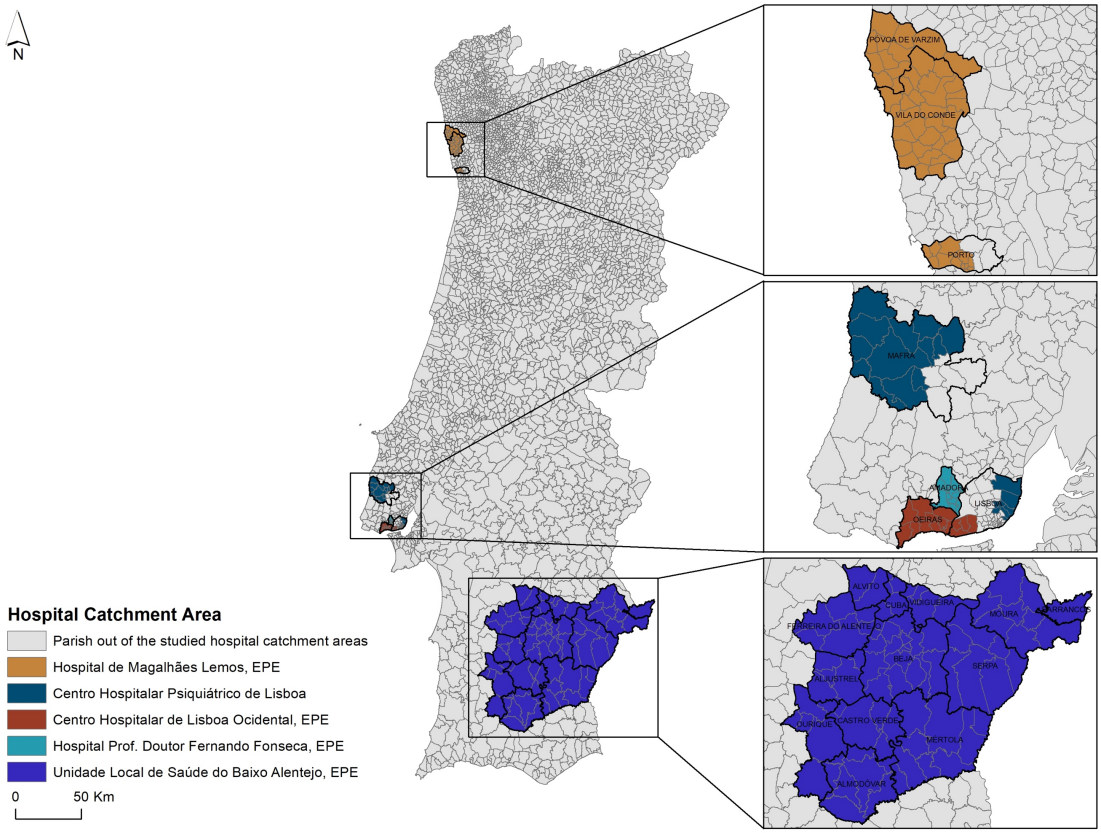

Figure 5 — Study areas

The research was approved by the ethics committee of each hospital, and confidentiality of all information gathered was ensured.

The data sources for this doctoral thesis were the inpatient clinical files of all patients from five public psychiatric departments which had at least one admission during 2002, 2007, and 2012. Socioeconomic and clinical information was recorded in a systematic manner through

structured data collection and patients were not assessed directly. Inpatients for scheduled procedures, such as electroconvulsive therapy, were excluded.

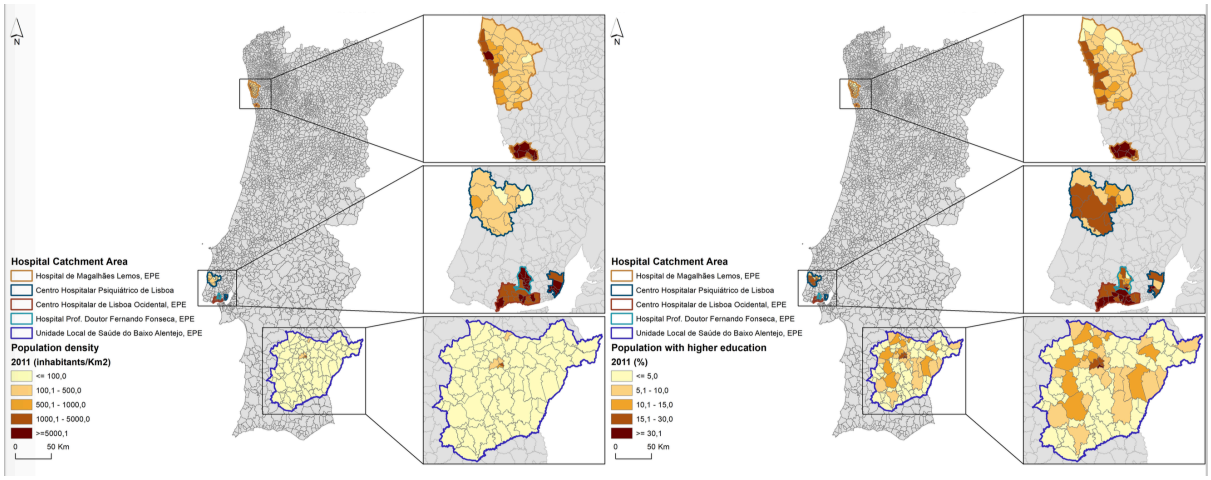

Figure 6 — Characterisation of the study areas according to the population density and education, in 2011

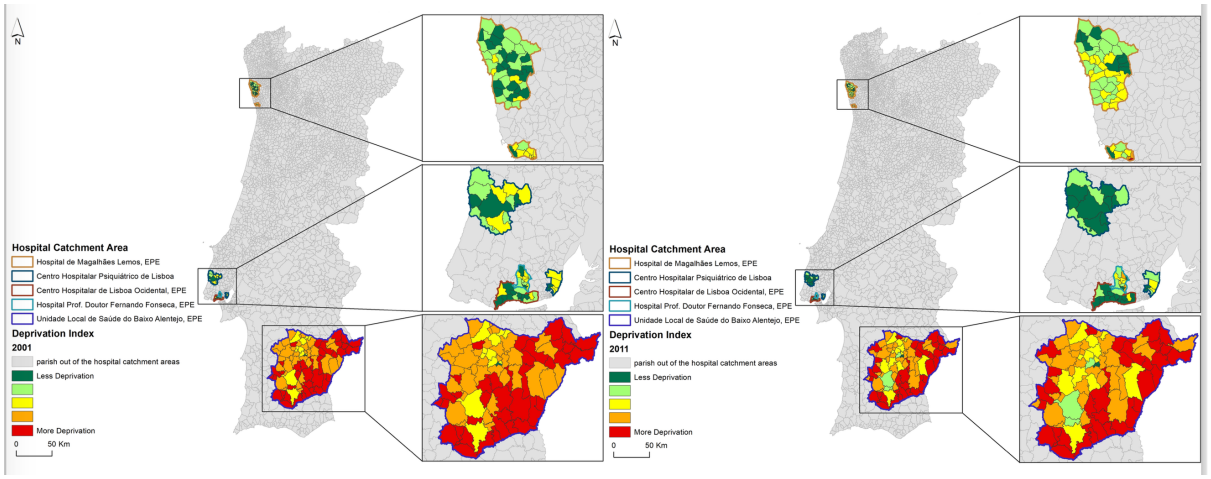

Figure 7 — Characterisation of the study areas according to the deprivation index, in 2001 and in 2011

2.3.1.1. Measurements

Length of hospital stay

The LOS for each admission was calculated as the number of days that elapsed between admission and discharge. The variable was dichotomised using the median, and longer LOS was defined as an admission equal to or greater than 17 days.

Number of hospital admissions

The number of admissions per patient in each year to the same hospital. The variable was dichotomised using the median, and readmission was characterised as more than one hospitalisation in each year.

Number of involuntary psychiatric hospitalisations

The number of involuntary psychiatric hospitalisations per patient in one year.

Individual sociodemographic and clinical characteristics

Sociodemographic characteristics included age (15-29; 30-49; 50-64; ≥ 65 years), gender, marital status (single; married/cohabitating; divorced/separated/widowed), education [none or primary education (≤4 years); basic education (5-9 years); secondary education (10-12 years); higher education (>12)], employment status [workers (including on sick leave) and students; unemployed; retired and others (including homemakers)].

Clinical characteristics included psychiatric diagnosis, suicide attempt, and compulsory admission. Psychiatric main diagnoses were established according to the International Classification of Diseases, 9th revision, and categorised into five groups: mood and anxiety disorders; dementia; substance use disorders; psychosis; other mental disorders.

Year of admission

Years of evaluation were 2002, 2007 and 2012.

Hospital

Data were retrieved from Centro Hospitalar Psiquiátrico de Lisboa, Hospital de Magalhães Lemos EPE, Centro Hospitalar de Lisboa Ocidental EPE, and Hospital Professor Doutor Fernando Fonseca EPE. Clinical files of the patients from Unidade Local de Saúde do Baixo Alentejo EPE were obtained in Centro Hospitalar Psiquiátrico de Lisboa, where patients were admitted.

2.3.2. Statistical analysis

For the first study, analyses were performed to estimate the association between both LOS and number of admissions with individual and contextual factors. Descriptive statistics were performed through frequencies and percentages. Multiple logistic regression models were used to estimate the association between both longer LOS (≥17 days) and readmission (>1 admission) with the sociodemographic, clinical, and contextual factors under study. Statistical significance was assessed by 95% confidence intervals (95%CI). Data analysis was conducted using the Statistical Package for Social Sciences (SPSS) version 23.0.

Analyses were also conducted to estimate the association between involuntary hospitalisations with individual and contextual factors. A Poisson generalized linear model (GLM) was employed for modelling the expected number of involuntary hospitalisations as a function of the following covariates: gender, age group, marital status, education, employment status, suicide attempt, psychiatric diagnosis, year of evaluation and psychiatric service. The R statistical software was used to perform all the statistical analyses (248).

Table 3 summarises the research papers conducted in the research phase 3.

Research paper number	Aims	Hypothesis	Data Source	Measurements	Analysis
Original research (paper n° 4)	To identify the individual and contextual factors that influence the use of mental health services, specifically the length of stay and readmission.	The use of mental health services, specifically length of stay and readmission, is associated with individual sociodemographic and clinical factors and with contextual factors.	SMAILE project	Independent variables: gender, age group, marital status, education, employment status, suicide attempt, psychiatric diagnosis, year of evaluation (2002, 2007 and 2012) and psychiatric service Dependent variable: length of hospital stay and number of hospital admissions per year	Descriptive statistics and multiple logistic regression models
Original research (paper n° 5)	To identify the individual and contextual factors that influence the use of mental health services, specifically involuntary psychiatric hospitalisation.	The use of mental health services, specifically involuntary psychiatric hospitalisation, may be associated with individual sociodemographic and clinical factors and with contextual factors.	SMAILE project	Independent variables: gender, age group, marital status, education, employment status, suicide attempt, psychiatric diagnosis, year of evaluation (2002, 2007 and 2012) and psychiatric service Dependent variable: number of involuntary psychiatric hospitalisations per patient in one year	Descriptive statistics and Poisson generalised linear model

Table 3 — Characteristics of the research papers conducted in the research phase 3

3. Results

The results of this research consisted in the elaboration of five scientific papers. This section presents an integral copy of the four published manuscripts and of the submitted manuscript. The references are presented at the end of each manuscript. An overview of the scientific papers, main results and implications can be found in Table 4.

Phase of research	Title	Journal and publication status	Main results	Implications
1st phase	**Impact of economic crises on mental health care: a systematic review**	Epidemiology and Psychiatric Sciences (Published)	Periods of economic crisis might be linked to an increase in seeking general help for mental health problems, with conflicting results regarding the changes in the use of specialised psychiatric care. The evidence on the use of mental health care specifically due to suicide behaviour is mixed. Economic crises might be associated with a higher use of psychotropic drugs and an increase in hospital admissions for mental disorders	The findings confirmed that the impact of economic crises on the use of mental health care is mixed, with increase in the use of more accessible and affordable general health care and increase in unmet need for specialised care. This pattern may widen the treatment gap and social inequalities in mental health. These results may inform health policy efforts in Portugal during the current economic crisis.
2nd phase	**Barriers to mental health services utilisation in Portugal - results from the National Mental Health Survey**	Journal of Mental Health (Published)	65.4% of participants with a mental disorder reported no service use. Treatment was more common among participants with mood disorders (OR=4.19;95%CI:2.72–6.46), and disability (OR=2.43;95%CI:1.33–4.46), and less common among single participants (OR=0.38;95%CI:0.20–0.70) and those with basic/secondary education (OR=0.42;95%CI:0.24–0.73). Attitudinal barriers were more likely among participants with none/primary (OR=2.90;95%CI:1.42–5.90) and basic/secondary education (OR=1.70;95%CI:1.01–2.85), and less likely among those with substance use disorders (OR=0.27;95%CI:0.10–0.70). Low perceived need was higher among single people (OR=1.77;95%CI:1.01–3.08), and lower among those with anxiety (OR=0.50;95%CI:0.28–0.90) and mood disorders (OR=0.16;95%CI:0.09–0.30). Unemployed participants had higher odds of reporting structural barriers	The findings confirmed the magnitude of the treatment gap in Portugal, and that access and type of barriers to mental health care varies according to sociodemographic and clinical factors. This knowledge may contribute to efforts in the development of policies and interventions to reduce these social inequalities in mental health.

			(OR=3.76;95%CI:1.29–10.92). Multivariate analyses were adjusted for age, gender, and presence of any physical disorder.	
2nd phase	How did the use of psychotropic drugs change during the Great Recession in Portugal? A follow-up to the National Mental Health Survey	BMC Psychiatry (Published)	An increase of 6.74% was estimated in the consumption of psychotropic drugs from 2008/09 to 2015/16. Population odds of consuming any psychotropic drugs in 2015/16 were estimated to be 1.5 times higher than in 2008/09 (OR=1.50;95%CI:1.13–2.01), particularly for hypnotics/sedatives (OR=1.60;95%CI:1.14–2.25). Women and older individuals presented higher odds of consuming any psychotropic drugs (OR=2.79;95%CI:2.03–3.84, and OR=1.80;95%CI:1.28–2.54), after adjusting for year of assessment and education. However, when evaluating the interaction effect of the year with gender and age, men and younger individuals reported higher odds of consuming any psychotropic drugs in 2015/16, when compared to 2008/09 (OR=1.85;95%CI:1.08–3.17, and OR=1.95;95%CI:1.32–2.90, respectively). Multivariate analyses were adjusted for education.	The findings suggest that the Great Recession was associated with an increased risk of psychotropic drugs use in Portugal, particularly hypnotics/sedatives. Consumption of psychotropic drugs remained higher among women and older individuals, but the results suggest that the economic crisis had a disproportionate impact on men and younger individuals. The results identified the vulnerable groups who should be given particular attention during the current crisis.
3rd phase	Factors associated with length of stay and readmission in acute psychiatric inpatient services in Portugal	Psychiatry Research (Published)	Older age (OR=1.82;95%CI:1.31-2.53 and OR=1.91;95%CI:1.23-2.97 for 50-64 and ≥65, respectively), a diagnosis of psychosis (OR=1.76;95%CI:1.40-2.22), and compulsory admission (OR=2.70; 95%CI:2.10-3.48) were associated with higher odds of longer length of stay. Being married (OR=0.60; 95%CI:0.47-0.76), secondary education (OR=0.59; 95%CI:0.44-0.79), suicide attempt (OR=0.67; 95%CI:0.52-0.86), a diagnosis of substance use and "other mental disorders" (OR=0.70; 95%CI:0.49-0.99, and OR=0.65; 95%CI:0.47-0.88, respectively), being admitted in 2012 (OR=0.71; 95%CI:0.56-0.90), and two of the psychiatric inpatient services (OR=0.53; 95%CI:0.39-0.73 and OR=0.39; 95%CI:0.28-0.54 for Hospital de Magalhães Lemos EPE and Centro Hospitalar Psiquiátrico de Lisboa, respectively) were associated with lower odds of longer length of stay. Being retired (or others) (OR=1.55; 95%CI:1.14-2.09), a diagnosis of psychosis (OR=1.38; 95%CI:1.04-1.84), compulsory admission (OR=1.74;	The findings confirmed that severe patterns of acute psychiatric inpatient use, specifically longer length of stay and readmission, vary according to individual sociodemographic and clinical factors, and contextual factors. Understanding who the high-risk patients are may support clinicians and policy makers when addressing the needs of this most vulnerable population.

			95%CI:1.33-2.29), and psychiatric service (OR=1.84; 95%CI:1.18-2.88, OR=2.12; 95%CI:1.34-3.36, OR=3.47; 95%CI:2.05-5.88, and OR=1.76; 95%CI:1.03-3.01 for Hospital de Magalhães Lemos EPE, Centro Hospitalar Psiquiátrico de Lisboa, Hospital Professor Doutor Fernando Fonseca EPE, and Unidade Local de Saúde do Baixo Alentejo EPE, respectively) were associated with increased odds of readmission. Older age (OR=0.51; 95%CI:0.29-0.90), and secondary and higher education (OR=0.57; 95%CI:0.39-0.82 and OR=0.58; 95%CI:0.39-0.85, respectively) were associated with lower odds of readmission.	
3rd phase	**Factors associated with involuntary psychiatric hospitalisation in Portugal**	International Journal of Mental Health Systems (Published)	Male gender [exp($\hat{\beta}$)=1.31;95%CI:1.06-1.62, p<0.05], having secondary and higher education [exp($\hat{\beta}$)=1.45;95%CI:1.05-2.01, p<0.05, and exp($\hat{\beta}$)=1.89;95%CI:1.38-2.60, p<0.001, respectively], a psychiatric diagnosis of psychosis [exp($\hat{\beta}$)=2.02;95%CI:1.59-2.59, p<0.001], and being admitted in 2007 and in 2012 [exp($\hat{\beta}$)=1.61;95%CI:1.21-2.16, p<0.01, and exp($\hat{\beta}$)=1.73;95%CI:1.31-2.32, p<0.001, respectively] were associated with an increment of involuntary hospitalisations. Being married/cohabitating [exp($\hat{\beta}$)=0.74;95%CI:0.56-0.99, p<0.05], having experienced a suicide attempt [exp($\hat{\beta}$)=0.26;95%CI:0.15-0.42, p<0.001], and belonging to the catchment area of three of the psychiatric services evaluated [exp($\hat{\beta}$)=0.65;95%CI:0.49-0.86, p<0.01, exp($\hat{\beta}$)=0.67;95%CI:0.49-0.90, p<0.01, and exp($\hat{\beta}$)=0.67;95%CI:0.46-0.96, p<0.05 for Hospital de Magalhães Lemos EPE, Centro Hospitalar Psiquiátrico de Lisboa and Unidade Local de Saúde do Baixo Alentejo EPE, respectively] were associated with a decrease in involuntary hospitalisations.	The findings identified individual and contextual factors that influence involuntary hospitalisation. These results may inform the development of better-targeted preventive interventions to reduce these hospitalisations.

Table 4 — Overview of the research papers, main results and implications

3.1. Original research article nº1

Epidemiology and Psychiatric Sciences

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Original Article

Impact of economic crises on mental health care: a systematic review

M. Silva[1], D. M. Resurrección[2], A. Antunes[1], D. Frasquilho[1] and G. Cardoso[1]

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Impact of economic crises on mental health care: a systematic review

Abstract

Aims: Unmet needs for mental health treatment are large and widespread, and periods of economic crisis may increase the need for care and the treatment gap, with serious consequences for individuals and society. The aim of this systematic review was to summarise the empirical evidence on the association between periods of economic crisis and the use of mental health care.

Methods: Following the PRISMA statement, MEDLINE, Embase, Scopus, Open Grey, and Cochrane Database were searched for relevant publications, published between 1990 and 2018, from inception to June 2018. Search terms included (1) economic crisis, (2) use of mental health services and (3) mental health problems. Study selection, data extraction and the assessment of study quality were performed in duplicate.

Results: Seventeen studies from different countries met the inclusion criteria. The results from the included articles suggest that periods of economic crisis might be linked to an increase of general help sought for mental health problems, with conflicting results regarding the changes in the use of specialised psychiatric care. The evidence on the use of mental health care specifically due to suicide behaviour is mixed. The results also suggest that economic crises might be associated with a higher use of prescription drugs and an increase in hospital admissions for mental disorders.

Conclusions: Research on the impact of economic crises on the use of mental health care is scarce, and methodologies of the included papers are prone to substantial bias. More empirical and long-term studies on this topic are needed, in order to adapt mental healthcare systems to the specific needs of the population in times of economic crisis.

Keywords: economic crisis; mental health care; systematic review; use of service

Introduction

The financial crisis that hit the global economy in 2008 led to the deepest recession since the 1930s (1), possibly longer, wider and deeper than the Great Depression (2). The crisis had a varied impact across countries, resulting in a decline in gross domestic product (GDP), a rise in unemployment rates and severe fiscal pressure (3). Many countries adopted austerity policies, with substantial reductions in public spending affecting health and social care budgets, and many citizens faced growing insecurity and social exclusion (3).

Research on the social determinants of mental health has shown that health is shaped by social and economic conditions, as well as by health and welfare systems (4). Economic crises may affect mental health either by increasing risk factors, such as unemployment, indebtedness and loss of socioeconomic status, or by weakening protective factors, such as job security and welfare protection programmes (5). Indeed, recent reviews assessing the health consequences of economic crises have revealed a significant relationship between these periods and psychopathology including suicide, onset or exacerbation of mood and anxiety disorders, heavy drinking, and psychological distress (6, 7). These results would make expectable an increased search for mental health treatment. However, barriers to access to mental health care may be exacerbated during economic crises, due to changes in the availability (e.g., cuts in human resources) and affordability (e.g., out-of-pocket payments) of services (8–10). Literature on how the use of mental health care varies in times of economic crisis is scarce, and recent reviews found mixed evidence (7, 11, 12). Zivin et al. (11) concluded that economic downturns might be associated with increased first admissions to mental health services. Cheung and Marriott (12) found a decline in the use of mental health services in the United States, likely due to a lack of access to insurance, and an increase in the use of prescription medication. Martin-Carrasco et al. (7) concluded that the treatment gap increases in times of economic crisis, probably due to the lack of accessibility to services, the austerity measures, and the increased stigma towards people with mental illness. However, these reviews had some limitations: a) only one of them followed the PRISMA guidelines (7); b) one of the systematic reviews did not focus specifically on the use of mental health care (7); and c) one did not include data from the 2008 Great Recession (11).

The aim of this study was to systematically review the available literature on the impact of economic crises on the use of mental health care, information that might contribute to the design of strategies, policies and programmes to promote equitable access to care in times of economic crisis.

Methods

Search strategy and selection of articles

The PRISMA guidelines for reporting systematic reviews were followed (13). The protocol was registered in the International Prospective Register of Systematic Reviews on June 28, 2017 (PROSPERO, registration N°: CRD42017069284). Comprehensive literature searches of MedLine (through Ovid and Pubmed), Scopus, Cochrane Database and Open Grey Repository databases were conducted, from inception to 20 June 2017 and last updated on 25 June 2018. Databases were searched separately by two reviewers (DMR and MS).

Three sets of keywords were combined in the search strategy: (1) economic crisis; (2) use of mental health; (3) mental health problems. Searches were piloted in Ovid and then adapted to run across the other databases (Supplementary Table 27). The reference lists of the primary studies selected as well as recent reviews in the field were checked. In addition, we contacted expert authors to identify any additional articles.

Study selection was done in duplicate (DMR and MS), and a third reviewer participated where disagreements arose (GC) over the three phases. First, duplicate studies were deleted. Second, a selection of potentially relevant articles was made based on the title and abstract. Third, after reading the full text, a final selection was made. The inter-agreement between reviewers measured with the κ statistic was excellent (κ = 0.81; 95% CI 0.65–0.97).

The studies selected had to meet specific inclusion criteria (table 5). We focused on countries that faced crises since the 1990s as this would allow the inclusion of the available research on the impact of the main economic crises on health, namely the Post-Communist Depression in the early 1990s, the East Asian financial crisis in the late 1990s, and the Great Recession in 2008. We selected only studies with a predominantly adult population, excluding those focusing on children and adolescents, as differences in psychopathology, clinical and social

characteristics between children/adolescents and adults would make it difficult to draw conclusions. We excluded studies focusing on residential care, due to the fact that during economic crises the population living in residential care, although vulnerable, were likely to be less exposed to factors affecting an individual's search for mental health treatment (social determinants of mental health and barriers to treatment) compared to those residing in permanent private dwellings, and it would be difficult to make comparisons between the two populations. Only observational studies, including ecological, cross-sectional, case-control and longitudinal studies, were selected. We included all health settings which were accessed with mental health problems as the main complaint.

Aspects considered	Inclusion criteria	Exclusion criteria
Population	Adult population with any mental health problem/disorder; countries that faced crises since the 90's	Population not accessing health care for mental health problems; population with a specific medical condition
Outcome	Access/use of mental health care (visits, admissions, lengths of stay, emergencies); use of psychotropic medication; referral to specialised psychiatric care	Impact on services (budget, organisational, financial); focused on cost; impact only on mental health prevalence
Design	Observational studies, including ecological, cross-sectional, case-control and longitudinal studies	Randomised controlled trials, systematic reviews, meta-analysis, editors' letters, clinical cases, protocols, qualitative studies
Language	All	None
Setting	Primary care; psychiatric/mental health outpatient services; psychiatric/mental health inpatient services	Non-psychiatric care; residential care

Table 5 — Inclusion and exclusion criteria for the studies included in the systematic review

Summary measures

The summary of measures included in the selected studies were relative risk (RR), adjusted relative risk (ARR), adjusted incidence rates (AIR) and incidence risk ratio (IRR).

Data synthesis

We developed a data extraction sheet, pilot tested it on three randomly selected studies that had been included and refined herein. The main characteristics of these studies were

rigorously extracted by MS and verified by a second reviewer (DMR). Any discrepancies were resolved by discussion between the two reviewers. In the event of disagreement, a third reviewer (GC) was consulted.

For each study, information was collected about the author(s), year of publication, study country, setting, sample size, time period of crisis, study design, purpose of the study, outcome variable (indicator), procedure for data collection and main results.

Risk of bias in individual studies

Quality assessment was performed independently in duplicate (DMR and MS), and a third reviewer participated in cases of disagreement (GC). The quality of the studies was assessed using the Quality Assessment Tool for Observational Cohort and Cross-Sectional Studies (14), which assesses 14 items, rating quality as poor, fair, or good.

Results

Search results

The search strategy produced 3098 potentially relevant studies (figure 8). Further six articles were identified from the references of the articles selected. Of these, 1187 were duplicates. Of those remaining, 1840 were excluded after reviewing the title and abstract. After reviewing the full text of the remaining articles, 60 were excluded for the following main reasons: 28 did not evaluate access or use of mental health services, ten were reports or theoretical articles, and seven did not include population accessing health care for mental health problems. Finally, 17 articles were selected.

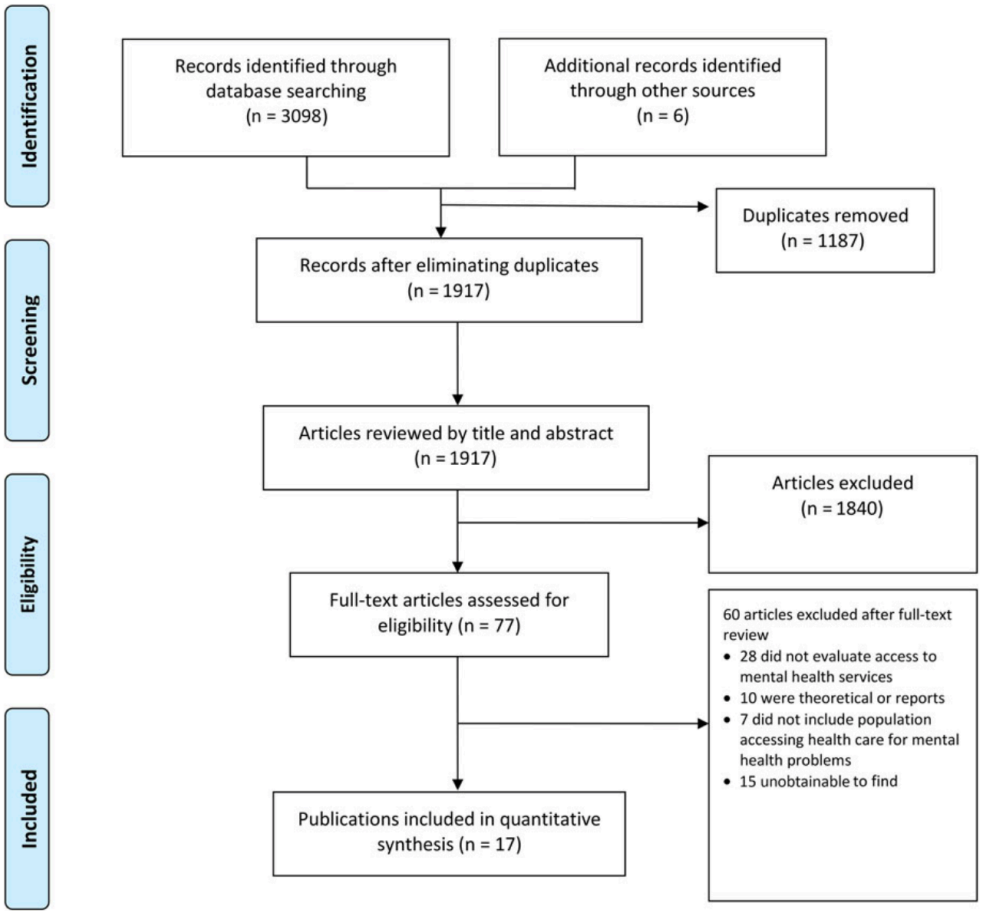

Figure 8 — Flow chart of articles included and excluded after the systematic review

The data of the included studies were extracted and summarised (table 6). Five were repeated cross-sectional studies, as well as four time series studies, three ecological studies, three cohorts, one panel study, and one longitudinal study. Eleven studies employed national population samples and six employed regional samples. The studies were based on samples from European countries (58.82%), US (29.41%), Australia (5.88%), and Republic of China (5.88%).

Author, year, country	Setting / population	Time period considered	Study design	Purpose of the study	Indicator / outcome considered	Procedure for data collection	Main results
Ásgeirsdóttir et al., 2017 Iceland	National population sample, general hospital, n=2548 (41% men, 59% women)	2003–12	Repeated cross-sectional study	To examine potential changes in suicide attempts and self-harm in Iceland during a period of major economic transition	Incidence of attendance rates due to suicidal behaviour	Hospital records	Risk of attendance post-collapse compared with pre-collapse (95% CI): Total sample: RR=0.95 (0.90-1.01) Women o total sample: 0.97 (0.89-1.04) o 18-25 years: 0.95 (0.82-1.1) o 26–35 years: 1.16 (0.99-1.37) o 36–45 years: 0.87 (0.73-1.03) o 46+ years: 0.94 (0.82-1.08) Men o total sample: 0.94 (0.86-1.03) o 18–25 years: 1.00 (0.83-1.19) o 26–35 years: 0.83 (0.69-1.00) o 36–45 years: 0.82 (0.67-1.00) o 46+ years: 1.13 (0.94-1.34)
Bidargaddi et al., 2015 Australia	Regional population sample, emergency services, n=from 978 to 1421 per month (mean 1226.5; S.E. 10.11)	2004–11	Time series	To analyse the effects of changes in rates of unemployment on numbers of Emergency Department Mental Health presentations	Use of emergency department due to mental health problems	Hospital records	Cross correlation between unemployment and mental health presentations to emergency departments: o At current month: CC=0.22; S.E.=0.2 o A lag of 2 months: CC=0.36; S.E.=0.2 Men: o 2 months prior unemployment rates: CC=0.36; S.E.=0.2 Women: o At current month: CC=0.23; S.E.=0.2 o Previous months: CC=0.29; S.E.=0.2 Cross correlation between men's unemployment and mental health presentations of women:

							○ Lag 2 of men's unemployment: CC=0.24; S.E.=0.2
Bonnie Lee et al., 2017 **Taiwan, Republic of China**	National population sample, hospitals, n=11 643 417 (53% men and 47% women)	2007–2012	Time series	To evaluate the impacts of the 2008 financial crisis on different socioeconomic subgroups in Taiwan	Monthly adjusted incidence rates of hospitalisation	Hospital records	Effects of economic recession on incidence rates of hospitalisation due to depressive illnesses (per 1 000 000 persons): Men ○ Low income: AIR=18.01 (95% CI 14.53-21.48) ○ Middle income: AIR=–3.56 (–1.93 to –5.18) ○ High income: AIR=2.76 (–7.56 to 13.09) Women ○ Low income: AIR=14.23 (8.46-19.99) ○ Middle income: AIR=–0,28 (–4.95 to 4.39) ○ High income: AIR=5.02 (4.05-6.00)
Buffel et al., 2015 **European countries**	National population samples, general and mental health outpatient visits, n=52 216 (45% men, 55% women)	2002, 2005-2006, and 2010	Repeated cross-sectional study	To examine whether the macro-economic context and changes therein are related to mental health care use, via their impact on mental health, or more directly, irrespective of mental health.	Use of mental health care	Structured interviews	General practitioner consultations[1]: Women ○ 2002: OR=0.728*** ○ 2010: OR=1.118* Men ○ 2002: OR=0.708* ○ 2010: OR=1.022 Psychiatrist consultations[1]: Women ○ 2002: OR=0.850* ○ 2010: OR=0.879* Men ○ 2002: OR=0.916 ○ 2010: OR=0.966 *p < 0.05; ***p < 0.001 [1]Adjusted for the interaction effects with the non-employed
Burgard and Hawkins, 2014	National population sample, all	2006-2010	Repeated cross-sectional study	To examine the consequences of the Great Recession for	Foregone use of mental health care	Structured interviews	Predicted percent reporting foregone mental health care by recessionary period: ○ Prerecession: 2.81%; p>0.05 ○ Early recession: 3.36%; p=0.006

USA	settings, n=73 403			disparities in foregone care in the United States.			o Recession and postrecession: 3.39%; p=0.001
Chen and Dagher, 2014 USA	National population sample, primary care and hospital outpatient visits, n=23 317 (29% men, 71% women)	2007–2009	Longitudinal study (panel study)	To examine the changes in health care utilisation for mental health disorders among patients who were diagnosed with depressive and/or anxiety disorders during the Great Recession in the USA.	Utilisation of prescription drugs. Use of mental health care	Medical records	Negative binomial results of differences in prescription drug use and physician visits before and during the recession: Women Prescription drug use o 2007: IRR=1.07; p=0.23 o 2008: IRR=1.20; p≤0.001 o 2009: IRR=1.20; p≤0.001 Physician visits o 2007: IRR=0.94; p=0.68 o 2008: IRR=1.28; p=0.05 o 2009: IRR=1.03; p=0.83 Men o Prescription drug use o 2007: IRR=0.98; p=0.79 o 2008: IRR=1.13; p=0.19 o 2009: IRR=1.11; p=0.25 Physician visits o 2007: IRR=0.66; p=0.06 o 2008: IRR=0.74; p=0.16 o 2009: IRR=0.55; p≤0.001
Córdoba-Dona et al., 2014 Spain	Regional population sample, emergency services, n=24 380 (47% men, 53% women)	2003–2012	Ecological study	To examine the impact of the economic crisis on suicide attempts, and its relation to unemployment, age and sex.	Use of emergency departments due to suicide behaviour	Hospital records	Linear regression fixed effects models for suicide attempt rates ($x10^5$) regressed on unemployment rates[1]: Men o β=1.08, p=0.04 (95% CI: 0.06-2.09) Women o β=0.49, p=0.52 (–1.23-2.21) [1]Adjusted for yearly trends

Dunlap et al., 2016 **USA**	National population sample, outpatient or inpatient mental health treatment, n=21 100 (49% men, 51% women)	2008–2010	Repeated cross-sectional study	To examine the relationship between state and local economic conditions and serious psychological distress, substance use disorders, and mental health service utilisation.	Mental health service utilisation	Structured interviews	Predictors of mental health service utilisation: Serious mortgage delinquency rate (quartile) (reference: quartile 1) o Quartile 2: ARR=0.73 (95% CI: 0.55-0.98) o Quartile 3: ARR=0.52 (0.38-0.71) o Quartile 4: ARR=0.54 (0.36-0.82) County unemployment rate (quartile) (reference: quartile 1) o Quartile 2: ARR=0.71 (0.60-0.84) o Quartile 3: ARR=0.62 (0.52-0.73) o Quartile 4: ARR=0.58 (0.46-0.74)
Gotsens et al., 2015 **Spain**	National population sample, all settings, n=23 760 in 2006 and n=16 616 in 2012	2006 and 2012	Repeated cross-sectional study	To analyse health inequalities between immigrants born in middle- or low-income countries and natives in Spain, in 2006 and 2012.	Utilisation of prescription drugs	Structured interviews	Use of psychotropic drugs: o PR 2006 = 0.22 (95% CI: 0.11-0.43) o PR 2012 = 1.20 (0.73-2.01)
Hawton et al., 2016 **UK**	Regional population sample, general hospitals, n=35 951 (40% men, 60% women)	2008-2010	Ecological study	To investigate the impact of the recent recession on rates of self-harm in England and problems faced by patients who self-harm.	Use of emergency departments due to suicide behaviour	Hospital records	Estimates of changes in rates of self-harm in 2008-2010 relative to expected rates based on trends in 2001-2007: Self-harm Oxford o Men: 6 (95% CI: –2 to 14) o Women: –9 (–26 to 8) Manchester o Men: 16 (3-30)* o Women: –2 (–20 to 16) Derby o Men: 17 (1-33)*

							o Women: 35 (18-52)* * p<0.05
Iglesias-Garcia et al., 2014 Spain	Regional population sample, general hospitals and mental health outpatient visits, n=1 078 406 (48% men, 52% women)	2000–2010	Ecological study	To study the association between socioeconomic status and number of people demanding mental health services.	Annual incidence and prevalence demand for mental illness	Hospital records	Administrative incidence of mental disease per 1000 inhabitants: o Z= – 1.863; p=0.03
Korkeila et al., 1998 Finland	National population, psychiatric hospitals, n=24 546 and n=24 909 (53% men, 47% women)	1900-1993	Retrospective cohort study	To study the changes in psychiatric inpatient population after (1) the rapid reduction in the number of beds in psychiatric hospitals, (2) the amendment of the mental health legislation and (3) the economic recession.	Discharges from psychiatric hospitals	Hospital records	Readmissions to psychiatric hospitals (Poisson regression analysis) First-timers: o N° readmissions: 9 616 (1991), 9 361 (1994); p=0.003 o 3 or more readmissions: 267 (1991), 402 (1994); p<0.001 All patients: o N° readmissions: 15 964 (1991), 15 715 (1994); p=0.005 o 3 or more readmissions: 1 407 (1991), 1 796 (1994); p<0.001 Total: o 24 546 (1991), 24 909 (1994); NS
Modrek et al., 2015 USA	National population sample, outpatient physician visits (including emergency	2007-2012	Cohort study	To examine the mental health effects of the Great Recession of 2008 to 2009 on workers who remained	Use of mental health care. Utilisation of prescription drugs	Medical records	Mental health inpatient utilisation: o β=0.002; p=0.078 Mental health outpatient utilisation: o β=0.019; p<0.001 Mental health medication supply (in 2007/2010): o Opiates: β=0.777; p=0.057

	room visits) and inpatient hospitalisations, n=11 625 (80% men, 20% women) and n=10 242 (81% men, 19% women)			continuously employed and insured.			o Antidepressants: β=3.54; p<0.001 o Sleep aids: β=0.997; p<0.01 Mental health medication supply (in 2007/2012): o Opiates: β=0.072; p>0.05 o Antidepressants: β=2.344; p<0.01 o Sleep aids: β=0.685; p<0.05
Ostamo and Lönnqvist, 2001 **Finland**	Regional population sample, general hospitals, n=3100	1989-1997	Time series	To investigate the rates and trends of attempted suicide treated in health care during a period of severe economic recession.	Use of health care due to suicide behaviour	Structured interviews and medical records	Trends of attempted suicide: o Men: χ^2=10.4461; p=0.0012 o Women: χ^2=2.553; p=0.11
Petrou, 2017 **Cyprus**	Regional population sample, primary care and hospital outpatient visits	2011-2014	Time series	To elucidate the impact of crisis and introduction of copayment in the utilisation of mental health services in Cyprus primary public health care sector.	Use of mental health care	Medical records	Visits to mental health services: o Non-significant increase during the early phases of the financial crisis; p=0.978 Introduction of copayment: o No impact on mental health services utilisation rate, up to 9 months following its inception; p=0.097
Sicras-Mainar and Navarro-Artieda, 2016 **Spain**	Regional population sample, primary care and hospital outpatient	2008–2009 and 2012–2013	Retrospective, observational study	To describe antidepressant use in the treatment of major depressive disorder during a	Utilisation of prescription drugs. Use of mental health care	Medical records	Total pharmaceutical spending and consumption of antidepressants during the two study periods: Precrisis period (2008–2009) / period of economic crisis (2012–2013) o Amount (mg): 1 032 494 352 / 2 306 366 425

	visits, n=3662 and n=5722			period of economic crisis.			o Amount / defined daily dose: 26 728 274 / 56 446 109 o Spending: 1 436 924 / 1 376 120 o Defined daily dose/patient: 7 298.8 / 9 864.8 Description of persistence, treatment strategies, referrals to specialist care and use of resources during the two study periods: Precrisis period / period of economic crisis Number of patients o N (%): 3 662 (39.0) / 5 722 (61.0) Persistence with treatment o Average, 6 months: 74.3% (95% CI 72.9%-75.7%) / 73.5% (95% CI 72.4%-74.6%); p=0.371 o Average, 12 months: 49.7% (95% CI 48.1%-51.3%) / 51.8% (95% CI 50.5%-53.1%); p=0.002 Referrals to a specialist o Rate of referrals: 20.3% (95% CI 19.0%-21.6%) / 23.8% (95% CI 22.7%-24.9%); p<0.001 Use of resources o Average number of primary care visits: 8.2 (7.2) / 9.9 (7.4); p<0.001 o Average number of visits to a specialist: 2.5 (1.8) / 2.2 (1.7); p=0.225 Values are expressed as percentage or mean (mean [S.D.])
Wong et al., 2014 USA	National population sample, primary care and outpatient	2004–2012	Longitudinal study	To examine whether local unemployment was associated with utilisation of	Use of mental health care	Medical records	Mental health visits at baseline and study end: o Under 65 Fiscal year 2004-quarter 1: mean 2064.32, S.D. 3688.00

	visits, n=11 041 855			Veterans Affairs Health Care System primary care, specialty care, and mental health services during 2004–2012.		Fiscal year 2012-quarter 4: mean 3073.44, S.D. 4886.73; p<0.001 o 65+ Fiscal year 2004-quarter 1: mean 358.65, S.D. 579.86 Fiscal year 2012-quarter 4: mean 743.89, S.D. 1040.69; p<0.001 Association between local area unemployment rates and outpatient utilisation, by copayment status and age group: o For copayment-exempt veterans under age 65, a 1% increase in the local area unemployment rate (LAUR) was associated with a 2.48% (95% CI, 2.25%-2.70%) increase in average mental health visits o For age 65+ copayment-exempt veterans, the LAUR was associated with increases in mental health (2.11%; 95% CI, 1.82%-2.39%) visits o For veterans subject to copayments and under age 65, the LAUR was not significantly associated with mental health visits (0.05%; 95% CI, 0.35%-0.45%) o Among age 65+ veterans subject to copayments, the LAUR was not significantly associated with clinic-level mental health visits (0.28%; 95% CI, 0.37%-0.93%)

AIR, adjusted incidence rates; CC, cross-correlation coefficient; PR, prevalence ratio; S.E., standard error

Table 6 — Details of studies included in this systematic review

Study quality

The results of the quality assessment of the included studies are presented in Supplementary Table 28. All studies have an objective clearly stated and a study population prespecified. Only two studies provided a sample size justification (15, 16). Nine studies measured the exposure of interest prior to the outcome (16–24). Seven studies did not provide adjustment for confounding variables (19, 23–28).

Impact of the economic crisis on the use of health facilities

Use of general and specialised care for mental health problems

Periods of economic crisis appeared linked to an increase of general help seeking for mental health problems (15, 19, 27), with mixed patterns for the use of specialised psychiatric care (15, 16, 18, 21, 24, 26). Two studies conducted in European Union countries found that a significantly increased contact with a general practitioner for mental health problems occurred during the period of economic crisis (15, 27), but a significantly decreased contact with a psychiatrist (15) or no change in the use of specialist care occurred despite the higher proportion of referrals (27). Bigardaddi *et al.* (19) found a higher number of visits to the medical emergency room for reasons of mental health during economic slow-down. Two studies in the US found a significant increase in the utilisation of mental health services during the Great Recession (18, 21), whereas two others found a significant decrease in the use of mental health services in this period (16, 26), and one found no impact of the crisis on the utilisation rate (24).

Hospitalisations for mental health problems

Several studies found an increase of hospital admissions for mental disorders during periods of economic crisis (21, 29, 30). In Finland (29), the increase of admissions was particularly significant in multiple readmissions among new inpatients (from 0.05 to 0.08, $p<0.001$), and in the diagnostic group of mood disorders among first-timers (by 60%) and among patients with previous admissions (by 39%). In the US (21), a marginally significant increase in the postrecession trend in inpatient utilisation compared with prerecession trend ($b = 0.002$; $p = 0.078$) was found. In Taiwan, Bonnie Lee *et al.* (30) found increased rates of hospitalisation for depressive illnesses. Specifically, the AIR of hospital admissions among the low-income group were ten times higher than those of the high-income group.

Use of health facilities due to suicide behaviour

The studies included found mixed results regarding the use of mental health care due to suicide behaviour (17, 23, 25, 28). Studies conducted in Nordic countries (Finland and Iceland) showed no overall increase in attendance rates due to suicide attempts and self-harm following economic crises (25, 28). On the contrary, an increase in the use of health facilities for suicide attempt and self-harm after the onset of the 2008 crisis was found in other European countries (Spain and England) (17, 23), with authors proposing that the increase may be related to changes in unemployment.

Impact of the economic crisis on the use of prescription drugs

Different studies found an increase in the use of psychotropic drugs during the period of an economic crisis, including psychotropic medications to treat depressive and anxiety disorders (16, 20, 21, 27). Gotsens *et al.* (20) compared the use of psychotropic drugs between natives and immigrants who arrived in Spain before 2006 and found that the increase in the use of psychotropic drugs was higher among immigrant men.

Impact of macroeconomic indicators on the use of mental health care

Several articles included in this review found that unemployment rates were associated with changes in help-seeking behaviour for mental health problems (15, 17, 18, 19, 21, 22, 26, 28). The likelihood of men contacting a general practitioner for mental health problems was found to be higher in countries experiencing an increase in the unemployment rate (OR = 1.031, 95% CI) (15). Studies in the US found significant associations between higher local unemployment and increased outpatient visits, use of opiates and sleep aids (21), as well as increased outpatient utilisation among veterans exempt from copayments (18). However, a third study in the US (22) found that individuals who resided in counties with higher unemployment rates were less likely to use mental health services compared with individuals who resided in counties with the lowest unemployment rates (ARR = 0.58, 0.62 and 0.71). Similarly, in Spain, the increase in the unemployment rate was associated with a clear decrease in mental health demand (26). Unemployment rates were also associated with the use of mental health care due to suicide attempts in men, accounting for almost half of the cases during the five initial years of the crisis in Spain (17). However, Ásgeirsdóttir *et al.* (28) found

that a 1% increase in unemployment rate was significantly associated with reduced attendance rates due to suicide attempts among men in Iceland (RR = 0.84; 0.76–0.93), but not among women.

Buffel *et al.* (15) found that, in countries with a decline in the GDP growth rate, employed men were less likely to contact a psychiatrist (OR = 0.966, 95% CI) compared to those in countries with an increase in the GDP growth rate, while Iglesias Garcia *et al.* (26) found that GDP increase was strongly associated with an increased demand for mental health care.

Finally, Dunlap *et al.* (22) found that individuals who resided in states with higher rates of serious mortgage delinquency were less likely to use mental health services (ARR = 0.54, 0.52 and 0.73, respectively).

Impact of individual indicators on the use of mental health care

Several studies included showed a higher utilisation of mental health care by women (such as access to outpatient visits, emergency department, prescription drugs and hospitalisation) compared to men during the crisis (15, 16, 30). Regarding the risk of attendance of health facilities due to suicidal behaviour, Ostamo and Lönnqvist (25) showed that there was a convergence of rates between genders, with the men's rates decreasing 15% (trend test $\chi 2$ = 10.45, $p \leq 0.001$), and the women's rates increasing 8% (trend test $\chi 2$ = 2.55, p = 0.11). Other studies showed that socioeconomic factors were more strongly associated with suicidal behaviour care in men than in women (17, 28).

Two studies found that adults aged 35–54 years were the risk group for the use of care due to suicidal behaviour (17, 23).

Bonnie Lee *et al.* (30) suggested low income to be a risk factor for hospitalisation for depressive disorders.

Gotsens *et al.* (20) found that, in Spain, the 2008 economic crisis may have had a worse impact on the health status of immigrants, as shown by the loss of the "healthy immigrant effect" and the equalisation of the previously lower use of psychotropic drugs among immigrants compared to natives. Chen and Dagher (16) found that ethnic minorities presented lower rates of health care use during the 2008 Great Recession. Specifically, compared to White women, African American women had significantly fewer physician visits (IRR = 0.71, p = 0.01), and

Latinas and African American women used significantly fewer prescription drugs (IRR = 0.75, p <0.001; IRR = 0.71, p <0.001). Compared with White men, Latino men had significantly lower rates of physician visits (IRR = 0.72, p <0.05), and lower rates of prescription drug utilisation (IRR = 0.72, p <0.001). Burgard and Hawkins (31) found that levels of foregone mental health care rose in the Great Recession of 2007–2009, but that disparities between ethnic groups in foregone mental care were stable during the recession.

Discussion

To our knowledge, this is the first systematic review to specifically study the impact of the economic crisis on the utilisation of mental health care following PRISMA guidelines. This study is relevant for systematising the scarce literature available, and for highlighting the risk of a growing treatment gap, particularly among the most vulnerable groups.

Our results suggest an increase of general help-seeking behaviour for mental health problems, with more contradictory results in relation to the use of specialised psychiatric care. There may be several explanations for these findings. First, in times of economic crisis, more accessible and affordable general health care might be the preferred pathway to care, with the subsequent increase in unmet need for specialised care (15). In these periods, reduced mental health budgets may decrease availability of mental health services and/or they may be unaffordable because of the reduction of households' disposable income, lack of health insurance coverage or the introduction of copayment in the public health care sector (22). Second, decreased motivation to demand specialised care may be due to possible negative consequences, such as fear of losing a job due to work disability or treatment stigma (26). Lastly, the adverse social circumstances that occur in periods of economic crisis might cause health expectations to decrease and induce more personal efforts to be taken on to achieve these expectations (26).

The review conducted by Martin-Carrasco *et al.* (7) had already described an increase in the treatment gap during times of economic crisis, pointing out the lack of accessibility to services, the austerity measures and the increased stigma as probable explanations.

Our review found different trends in relation to the use of mental health care due to suicide behaviour between the Nordic countries and other European countries. Possible factors explaining these findings might be Nordic countries' relatively high levels of social capital and strong welfare systems, possibly mitigating the adverse consequences of unemployment on suicidal outcomes (25, 28).

Our results also suggest that economic crises might be associated with a higher use of prescription drugs and an increase in hospital admissions for mental disorders, as had been found in previous reviews (11, 12).

The results provide information on the patterns of demand for care of different groups defined by an axis of inequality during economic crises. The groups of people most susceptible to the effects of crises were not consistently those that most accessed mental health care (15–22, 26, 28, 30, 31). Mental health care utilisation patterns depend on the recognition that help is needed (32, 33), on structural factors including financial costs (34), and availability of services (35, 36), and on attitudinal factors (37, 38). These factors might change during economic crises and affect differently the various socioeconomic groups, possibly exacerbating systemic problems in access to care and widening social inequalities in mental health. The reasons for the increased treatment gap among vulnerable groups might include a disproportionate worsening of socioeconomic conditions, the impact of austerity measures, and subsequent reduced available income, lack of social protection and a reduction in available health care, but also worse perceived need for care, reluctance to seek services and/or cultural or linguistic barriers.

In the studies included, during periods of crisis, women used mental health care more frequently than men (15, 16, 19, 30). This might reflect women's relatively worse mental health status and higher need for care or gender differences in healthcare-seeking behaviour. Reasons for gender differences in healthcare-seeking behaviour could be greater stigma among men, a greater ability of women to identify their mental health problems or differences in health insurance coverage. Some of the studies reviewed suggest that socioeconomic factors may be more strongly associated with suicidal behaviour in men than in women (17, 23, 28). One possible explanation to this finding is that men are subjected to more pressure from their working role and relative expectations of socioeconomic success, thereby

sensitised to unmet expectations. Related to this, mild-adulthood seemed to be the most consistent risk group for the use of care due to suicidal behaviour (17, 23). This finding could be attributed to the fact that it is a period of pressure to the main earners, and during which financial crisis-related events most frequently occur.

Policy implications

The results of this systematic review highlight the need for health services to be particularly attentive and responsive to changes in patients' socioeconomic status, especially to the needs of the most vulnerable groups.

Models of care that are closer to the population, that facilitate the early identification of mental health problems and the implementation of integrated interventions, and that have a focus on prevention of mental health problems and disorders are particularly useful.

It is crucial to maintain universal, accessible and affordable health care of good quality to avoid increasing the treatment gap.

Additionally, reforms of social welfare to maintain or strengthen safety nets and interventions across several sectors beyond the mental health sector are fundamental to minimise increasing social inequalities in mental health during economic crises.

Strengths and limitations

This review provides updated evidence about the impact of economic crises on the use of mental health care, and it is the first systematic review following the PRISMA statement in this field.

The results give us some information on the patterns of demand for care of different socioeconomic groups during these periods, and we propose some insights for these findings.

However, results should be taken with caution due to several aspects.

First, studies from some of the most severely affected countries by economic crises were not available, and this low representation of geographical and health systems limits the interpretation of our results. The scarce variety of a study's origin may reflect different levels of cross-country research or a publication bias, due to financial constraints, methodological

difficulties or language barriers. It would be highly beneficial if this gap in the existing literature could be improved.

Second, the diversified designs of the included studies make it difficult to derive more homogeneous and robust conclusions, and to ascertain causality. Future studies should combine both aggregate-level and individual-level research, and longitudinal studies are needed. Measurement error may have occurred for some of the indicators. Service indicators are dependent on the nature and structure of the services, many are clinical and not based on standardised interviews and have limitations such as potential variations in the registry. Most of the studies reported that during the period studied, there was no variation in the organisation of mental health services or registration process, in addition to those resulting from the austerity measures. Due to the special features of economic crises in each country, the specific national welfare and health systems and the countries' policies adopted to deal with the crisis, external validity may be limited, and further research is needed to confirm the results obtained.

Third, the literature included results linked to different economic crises worldwide. Different types of economic crises will influence the length, depth and effects of the recession.

Conclusions

Research is scarce on the impact of economic crises on the use of mental health care, and methodologies used in these papers were prone to substantial bias. However, the evidence suggests that periods of economic crisis might be linked to an increase of demand for care at the general care level, an increase of hospital admissions for mental disorders and a significant higher use of prescription drugs, with more conflicting results in the use of specialised psychiatric care.

Other crises will occur in the future, and more empirical and long-term studies are needed in order to adapt mental health care systems to the needs of the populations, especially in times of economic crisis.

Conflict of interest

None.

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Availability of data and materials

The data regarding the process of screening and selection of the articles included in this systematic review are available in an online Supplementary material.

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ORIGINAL ARTICLE

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Barriers to mental health services utilisation in Portugal – results from the National Mental Health Survey

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Barriers to mental health services utilisation in Portugal — results from the National Mental Health Survey

Abstract

Background: The treatment gap for mental disorders remains a challenge worldwide. Identifying reasons for nontreatment may contribute to reducing this gap.

Aims: To evaluate sociodemographic and clinical factors associated with use and barriers to treatment in Portugal.

Method: Data from the 2009 National Mental Health Survey were used. Participants reported 12-month treatment and reasons for nontreatment. Logistic regression models analysed the association between sociodemographic (education; employment; income; marital status) and clinical variables (mental disorder diagnosis; disability) with treatment and type of barriers (low perceived need; structural; attitudinal).

Results: The majority of participants with a mental disorder was not treated. Treatment was more common among participants with mood disorders (OR = 4.19; 95% CI: 2.72-6.46), and disability (OR = 2.43; 95% CI: 1.33-4.46), and less common among single participants (OR = 0.38; 95% CI: 0.20-0.70), and those with basic/secondary education (OR = 0.42; 95% CI: 0.24-0.73). Attitudinal barriers were more likely among participants with none/primary (OR = 2.90; 95% CI: 1.42-5.90) and basic/secondary education (OR = 1.70; 95% CI: 1.01-2.85), and less likely among those with substance use disorders (OR = 0.27; 95% CI: 0.10-0.70). Low perceived need was higher among single people (OR = 1.77; 95% CI: 1.01-3.08), and lower among those with anxiety (OR = 0.50; 95% CI: 0.28-0.90) and mood disorders (OR = 0.16; 95% CI: 0.09-0.30). Unemployed participants had higher odds of reporting structural barriers (OR = 3.76; 95% CI: 1.29-10.92).

Conclusions: This study identifies factors associated with nontreatment, providing useful evidence to develop policies and effective interventions.

Keywords: mental healthcare; treatment seeking; barriers to use; health policy; social inequalities

Introduction

Mental and substance disorders are global leading causes of disease burden and disability, accounting for 7.4% of all disability-adjusted life years worldwide in 2010 (1). Although cost-effective interventions are available, a high proportion of people with mental disorders do not receive care (2–6), even when these conditions are severe and disabling (7, 8), with serious societal consequences (9, 10). An important step in reducing the treatment gap, measured by the difference between true and treated prevalence (11), is to identify the specific reasons why individuals with mental disorders either do not seek treatment or drop out of care. This information about the barriers to use is important to guide mental health services development, allocate resources and promote equitable access to care.

Research suggests higher rates of mental health service utilisation among women (12–15), urban residents (12–14), those previously or currently married (12, 15), with a psychiatric disorder (13), with mental health insurance benefits (12, 13) and with higher education levels (14–17). Age and income have been less consistently correlated with service utilisation (15, 18–21).

Theoretical models of mental health help-seeking behaviour suggest this is a multidimensional phenomenon, with numerous factors likely influencing an individual's decision to seek mental health treatment, and classify predictors of health service use in predisposing, enabling, and needs-related factors (22, 23). Following this classification, barriers to service use within the general population have been broadly divided into three categories (8): 1) the lack of recognition that help is needed (24–27); 2) structural factors including financial costs (25, 26, 28) and lack of availability of services (26, 28–32); and 3) attitudinal factors such as wanting to handle the illness independently, pessimism regarding the effectiveness of treatments (33, 34), viewing mental illness as the result of personal weakness, and fear of stigma (7, 16, 24, 26, 35, 36, 37). The contribution of these factors, however, may vary across populations, health care settings (26), and possibly over time (28). Attitudinal barriers to service utilisation have emerged as the more critical type of barrier in many studies in developed countries (26, 38), except for low-income individuals (7, 8, 26, 29, 39, 40).

In Portugal, a public National Health Service was established in 1979 and provides universal health care (41). In 2008, a new national mental health care plan was launched to reorganise the delivery of services, whose core values were deinstitutionalisation, development of mental health services in general hospitals and in the community, and integration of psychiatric treatment at the primary care level (42). Access to specialist care is usually achieved by referral from the General Practitioner (gate-keeper role), but the links between specialised services and primary care are still insufficient (43). Despite improvements in the provision of mental health care, available data suggests shortages in terms of accessibility and quality of care, which is particularly serious since Portugal has one of the highest prevalence of mental disorders in Europe (44). In fact, 22.9% of adults have experienced a 12-month mental disorder (44), but there is a lack of research to understand the factors that shape differential utilisation of health care services, to elucidate attitudes toward and knowledge of mental illness.

The aim of this study is to examine the use, patterns, and barriers to mental health treatment among adults with mental disorders in Portugal. The sociodemographic and clinical factors associated with access and type of barriers to mental health care were evaluated. These findings may contribute to design more effective interventions and policies aiming to ensure equitable access to mental health services in Portugal.

Materials and methods

Design and study sample

The Portuguese National Mental Health Study, a nationally representative cross-sectional study, was conducted as a part of the World Mental Health Survey (WMHS) Initiative in 2008/9 (45). The survey was based on a stratified multistage clustered area probability household sample of Portuguese-speaking adults, aged 18 years or above, residing in permanent dwellings in the country's mainland (45).

The response rate was 57.3%, similar to the surveys in Belgium, France, Germany, and the Netherlands (45). Informed consent was obtained from all individual participants included in the study before each interview and all procedures were approved by the Ethics Committee of the Nova Medical School, Nova University of Lisbon (ref. 10/2008).

The survey was administered by trained lay interviewers with a computer-assisted personal interview on a face-to-face setting and the questionnaire was divided in two parts to reduce respondent burden. Part I included core diagnostic assessment of mental disorders (n=3849) and Part II was administered to all participants meeting criteria for any mental disorders, as well as a probability sample of 25% randomly selected participants who did not meet these criteria (n=2060). Part II included the assessment of additional mental disorders, correlates and consequences of mental disorders, self-reported chronic conditions and use of services. For this study, only Part II data were used.

Weighting procedures were implemented in Part I data to adjust the differential probabilities of selection between and within households, non-response bias and discrepancies between the sample and the sociodemographic and geographic distribution of the Portuguese census population. Part II data were additionally weighted to adjust for the differential sampling of Part I participants into Part II.

Further information regarding the study design, fieldwork procedures and methodology can be found elsewhere (45).

Measurements

Twelve-month mental disorders

The presence of a mental disorder in the past 12 months was assessed using the version 3.0 of the World Health Organization Composite International Diagnostic Interview (CIDI), a fully structured diagnostic interview (46), which has shown good concordance with the Structured Clinical Interview for the American Psychiatric Association's Diagnostic and Statistical Manual Disorders Fourth Edition (DSM-IV) in a clinical reappraisal study (47). Diagnoses of 12-month mental disorders followed DSM-IV criteria and included anxiety disorders (panic disorder, generalised anxiety disorder, agoraphobia without panic disorder, specific phobia, social phobia, posttraumatic stress disorder, obsessive-compulsive disorder, separation anxiety disorder), mood disorders (major depressive disorder, dysthymia, bipolar disorder I and II) and alcohol use disorders (alcohol abuse with or without dependence).

Use of services

Treatment in the last 12 months was assessed by asking respondents if they saw any of a long list of professionals either as an outpatient or inpatient for problems with emotions, nerves, mental health or use of alcohol or drugs. The list included mental health professionals (e.g., psychiatrist, psychologist), general medical professionals (e.g., general practitioner, occupational therapist), religious counsellors and traditional healers (e.g., herbalist, spiritualist).

Barriers in the use of services

Participants who reported no use of services were asked if there was a time during the past 12 months they might have needed to seek professional help for mental health problems. Participants who did not think they needed help or who thought they needed help for less than four weeks were classified as "low perceived need." Respondents with "perceived need" were subsequently asked about structural and attitudinal barriers (table 7).

Barriers to health treatment
Low perceived need:
The problem went away by itself, and I did not really need help.
Structural barriers:
I did not have money for treatment.
I was concerned about how much money it would cost.
I was unsure about where to go or who to see.
I thought it would take too much time or be inconvenient.
I could not get an appointment.
I had problems with things like transportation, childcare or scheduling that would have made it hard to get to treatment.
Attitudinal barriers:
I thought the problem would get better by itself.
I did not think treatment would work.
I was concerned about what others might think if they found out I was in treatment.
I wanted to handle the problem on my own.
I was scared about being put into a hospital against my will.
I was not satisfied with available services.
I received treatment before, and it did not work.
The problem didn't bother me very much.

Table 7 — Barriers to health treatment: WMHS Portugal

Individual characteristics

Sociodemographic characteristics. Sociodemographic characteristics assessed included marital status (married; separated, divorced or widowed; single), educational level [none or

primary (≤ 4 years); basic (≤ 9 years) or secondary (≤ 12 years); university], income (two categories were constructed based on the median: low or low-average; high-average or high) (48), and employment status (working or student; unemployed; retired or other).

Clinical characteristics. Clinical characteristics included disability and presence of any physical disorder. Disability was assessed with the WMHS version of the World Health Organization Disability Assessment Schedule (WHODAS-II) for the WMHS Initiative, which evaluates difficulties over the last 30 days in the cognitive, mobility, self-care, social interaction and time out of role domains (49). Domains scores range from 0 to 100, with higher scores meaning greater disability. A global disability score aggregating all domains scores was obtained and dichotomised at the 90th percentile to indicate the presence or absence of substantial disability (49).

Covariates. Covariates included in the models were age (evaluated as a continuous variable), gender and presence of any physical disorder. Physical disorders were self-reported through a chronic disorders checklist that has shown good concordance with medical records (50).

Statistical analysis

Relative and absolute frequencies, means and standard deviations were used for descriptive analysis. Four multiple logistic regression models were performed to evaluate the association between sociodemographic and clinical variables and having received treatment (yes/no) or barriers to treatment (low perceived need, attitudinal barriers, structural barriers) among the participants with any 12-month mental disorder. All variables were included in the first step of the models and were excluded sequentially using a stepwise approach based on statistical significance. The final models were adjusted for age, gender and presence of any physical disorder.

Estimates were weighted according to the characteristics of the study, as previously explained. A significance level of $\alpha = 0.05$ was used throughout the analysis.

Analyses were performed using the Statistical Package for the Social Sciences (IBM® SPSS® Statistics) version 21.0.

Results

Descriptive statistics

Of the 2060 Part II participants, 809 (22.0%) met criteria for a 12-month mental disorder and, among those, 489 (65.4%) reported no service use during that period. The sociodemographic and clinical characteristics of the sample are described in table 8.

	Sub-sample with any mental disorder (n=809)	With any 12-month health treatment	
		Yes	No
	n (%)	n (%)	n (%)
Sociodemographic characteristics			
Gender			
Male	212 (33.1)	69 (30.0)	143 (70.0)
Female	597 (66.9)	251 (36.8)	346 (63.2)
Marital Status			
Married	481 (61.8)	199 (37.1)	282 (62.9)
Separated/divorced/widowed	123 (11.1)	72 (58.8)	51 (41.2)
Single	205 (27.2)	49 (18.7)	156 (81.3)
Income			
Low or low-average	338 (47.6)	140 (34.3)	198 (65.7)
High-average or high	398 (52.4)	165 (34.6)	233 (65.4)
Educational level			
None or primary	168 (21.0)	84 (45.3)	84 (54.7)
Basic or secondary	403 (59.4)	147 (28.3)	256 (71.7)
University	165 (19.7)	74 (41.6)	91 (58.4)
Employment status			
Working or student	489 (67.5)	176 (30.4)	313 (69.6)
Unemployed	92 (12.0)	43 (44.4)	49 (55.6)
Retired or other	155 (20.5)	86 (43.0)	69 (57.0)
Age	Mean (SD)	Mean (SD)	Mean (SD)
	42,3 (16.2)	45.8 (14.5)	40,5 (16.8)
Clinical characteristics			
Disability			
Yes	116 (14.1)	76 (61.5)	40 (38.5)
No	620 (85.9)	229 (30.1)	391 (69.9)
Any physical disorder			
Yes	596 (80.5)	261 (36.7)	335 (63.3)
No	140 (19.5)	44 (25.8)	96 (74.2)

n: unweighted; %, mean, SD: weighted

Table 8 — Descriptive statistics of the sociodemographic and clinical characteristics of the WMHS Portugal sub-sample of participants with any mental disorder and with any health treatment

Association between having received treatment and sociodemographic and clinical factors

The multiple logistic regression model indicates that having received treatment was significantly associated with marital status, educational level, presence of a 12-month mood disorder and disability, as presented in table 9.

	Use of services	Barriers to use of services[1]		
	Any health treatment in the last 12-months	Low-perceived need	Attitudinal barriers	Structural barriers
	OR (95%CI)	OR (95%CI)	OR (95%CI)	OR (95%CI)
Sociodemographic characteristics				
Marital status				
Married	Ref.	Ref.	—	—
Separated/divorced/widowed	1.50 (0.76-2.97)	0.72 (0.33-1.57)	—	—
Single	0.38 (0.20-0.70)*	1.77 (1.01-3.08)*	—	—
Educational level				
None or primary	0.52 (0.25-1.11)	—	2.90 (1.42-5.90)*	—
Basic or secondary	0.42 (0.24-0.73)*	—	1.70 (1.01-2.85)*	—
University	Ref.	—	Ref.	—
Employment status				
Working or student	—	—	—	Ref.
Unemployed	—	—	—	3.76 (1.29-10.92)*
Retired or other	—	—	—	0.86 (0.11-6.98)
Clinical characteristics				
12-month mood disorder				
Yes	4.19 (2.72-6.46)**	0.16 (0.09-0.30)**	—	—
No	Ref.	Ref.	—	—
12-month anxiety disorder				
Yes	—	0.50 (0.28-0.90)*	—	—
No	—	Ref.	—	—
12-month substance use disorder				
Yes	—	—	0.27 (0.10-0.70)*	—
No	—	—	Ref.	—
Disability				
Yes	2.43 (1.33-4.46)*	—	—	—
No	Ref.	—	—	—

Table 9 — Odds ratios (OR) and respective 95% confidence intervals (95%CI) of the association between having received treatment or barriers to treatment and sociodemographic and clinical factors

[1] Sub-sample of participants with any 12-month mental disorder and no 12-month health treatment
All the variables were included in the first step of the model (marital status, educational level, income, employment status, 12-month mood disorder, 12-month anxiety disorder, 12-month substance use disorder and disability). Variables were excluded

sequentially using a stepwise approach based on statistical significance. The final models were adjusted for age, gender and presence of any physical disorder. *p<0.05; **p<0.01

Single participants had 62% lower odds of having received treatment than married patients (OR = 0.38; 95% CI: 0.20-0.70; p = 0.002). Participants with basic or secondary education had 58% lower odds of having received treatment than those with university level (OR = 0.42; 95% CI: 0.24-0.73; p = 0.002). Participants with a mood disorder had approximately 4 times higher odds of having received treatment than those who did not have mood disorders (OR = 4.19; 95% CI: 2.72-6.46; p <0.001), and participants with disability presented 2.4 times higher odds of having received treatment than those who did not have disability (OR = 2.43; 95% CI: 1.33-4.46; p = 0.004).

Barriers to treatment and association with sociodemographic and clinical factors

The barriers that accounted for nontreatment were evaluated among participants who met criteria for a 12-month disorder but reported no service use (n=489). Attitudinal barriers were the most commonly-reported barrier to treatment (37.5%, n = 275), followed by low perceived need (29.1%, n = 167) and structural barriers (4%, n = 30). The association between each type of barrier and sociodemographic and clinical characteristics is presented in table 9.

Attitudinal barriers to treatment were associated with educational level and presence of a 12-month substance use disorder. Participants with none or primary education had approximately 3 times higher odds of reporting attitudinal barriers than participants with university level (OR = 2.90; 95% CI: 1.42-5.90; p = 0.003), and participants with basic or secondary education had 1.7 times higher odds of reporting attitudinal barriers than participants with university level (OR = 1.70; 95% CI: 1.01-2.85; p = 0.044). Participants with a 12-month substance use disorder had 73% lower odds of reporting attitudinal barriers than participants without a substance use disorder (OR = 0.27; 95% CI: 0.10-0.70; p = 0.007).

Low perceived need for treatment was associated with marital status, presence of a 12-month anxiety disorder and presence of a 12-month mood disorder. Single participants had 77% higher odds of low perceived need than participants who were married (OR = 1.77; 95% CI: 1.01-3.08; p = 0.045). Participants with a 12-month anxiety disorder had 50% lower odds of low perceived need than participants with no anxiety disorder (OR = 0.50; 95% CI: 0.28-0.90; p =

0.021), and participants with a 12-month mood disorder had 84% lower odds of low perceived need than participants with no mood disorder (OR = 0.16; 95% CI: 0.09-0.30; p <0.001).

Structural barriers were associated with unemployment. Unemployed participants had around 3.8 times higher odds of reporting structural barriers to treatment than employed participants (OR = 3.76; 95% CI: 1.29-10.92; p = 0.015).

Discussion

This study used a nationally representative data sample to investigate the factors related to mental health service utilisation and barriers, adding new information to the limited knowledge about these factors among the Portuguese population.

The results indicate low rates of treatment among the Portuguese who met criteria for a past year mental disorder, in line with most countries worldwide, with 65.4% reporting no service use despite universal healthcare access. According to the findings from the WMHS, the proportion of respondents who received 12-month health care treatment for emotional or substance use problems varies from a low of 0.8% in Nigeria to a high of 15.3% in the United States (2), only 27.6% of participants with a 12-month DSM-IV anxiety disorder receive any treatment (5) and only 16.5% of individuals with a 12-month major depressive disorder receive minimally adequate treatment (4). Other research has shown that 26% of patients receive professional help for their problems in Europe (51). Following recent studies in this area (10, 52, 53), disability was used as a measure of the burden of mental disorders and of the impact of the treatment gap, instead of differentiating cases by severity. The finding that 38.5% of the participants with disability reported no service use is particularly concerning.

Service utilisation was significantly lower among those never married. This finding is in line with other research (38), but it is not consistent across studies (20). A possible explanation may include the reluctance of some individuals to access services when taking that decision by themselves. The most important determinant of the use of health services was the presence of a mood disorder, consistent with previous research (21, 51). Disability was strongly associated with the use of health care services in the past year, as found in other studies showing that severity, evaluated with various measures, contributes to seeking mental health

care (14). Higher education was also found to be a determinant of the use of health care services, in line with other authors (21, 54). This finding may suggest the contribution of education to increased health literacy and ability to navigate institutions.

Attitudinal barriers were the most commonly reported barrier to treatment, followed by needs related factors and finally by structural barriers. These findings are consistent with previous studies (19, 20, 26), but in contrast to others that have found low perceived need for treatment to be the most prevalent impediment (24, 25, 40). Attitudinal barriers were more often reported by participants with a lower educational level, similar to other research (14), and highlights the importance of health literacy. Attitudinal barriers were significantly less reported by participants with any 12-month substance use disorder, in contrast with the findings of previous studies on the negative attitudes toward mental health service use by those with alcohol and substance abuse or dependence (38). This may suggest a decreased stigma in relation to these disorders in our country and a lower tendency for patients and providers to view these problems as social or criminal rather than medical.

Low perceived need for treatment was also an important barrier for seeking treatment, consistent with previous studies (14, 27). Low perceived need was more reported by single participants, whereas having an anxiety or mood disorder was associated with perceived need for treatment, which may reflect its associated disability (25).

Lastly, results show that structural barriers are likely to hinder appropriate access of unemployed participants to mental health care. This is particularly troublesome, as it could mean that universal healthcare access is not ensured, and suggesting the potential impact of financial barriers in treatment seeking in Portugal, possibly contributing for widening health inequalities. The finding that unemployment, but not income, was related to structural barriers indicates that aspects other than financial are fundamental in this type of barriers.

Several limitations of this study should be acknowledged. First, results are subject to recall bias since diagnoses of mental disorders, treatments and reasons were all assessed retrospectively over a 12-month recall period with self-report. Second, the list of reasons/barriers for not seeking treatment was limited to those reported most commonly in previous research, and some individuals may have had other reasons for not initiating treatment that were not included in our list. Third, questions about barriers to treatment were

structured in a way that prevented those with low perceived need from endorsing other reasons, which might have led to an underestimate of other reasons. Fourth, some of the most disabling mental disorders, such as schizophrenia, were not evaluated. Fifth, the number of participants may also limit the interpretation of results, particularly regarding the factors associated with structural barriers. Finally, these findings do not account the possible changes in populations' mental health and utilisation of services during the 2008 economic recession, which may have contributed to additional difficulties accessing health services, particularly among those more socially disadvantaged (55). Austerity policies are expected to have led to an increase in demand and a decrease in availability and affordability of services that might have influenced the results if collected today.

Despite these limitations, this study used a nationally representative data sample to understand the sociodemographic and clinical factors associated with barriers to using mental health services in Portugal. This knowledge fills an important gap of research and may contribute to developing more effective interventions and policies to promote equitable access to mental health services.

Conclusions

The findings of this study indicate that mental disorders remain untreated for many individuals in Portugal, making it a significant public health issue. The results suggest that new public awareness and education initiatives are needed to increase mental health literacy – that is, knowledge and beliefs about mental disorders, and available treatment options – among those living with these disorders, their family and community, and to have an impact on treatment utilisation patterns, in conjunction with strategies to increase individuals' ability to recognise the symptoms. An example of enhancing public awareness is the increasing availability of e-health and self-help resources (18). Risk groups for each barrier were also identified, to whom early prevention efforts and specific interventions should be addressed. Accordingly, strategies aimed at changing attitudes and services designed especially to those with a lower education level should be promoted to reduce their reluctance to seek health services. Health campaigns should consider that single people are also a priority target. Despite universal health coverage, affordable and accessible health care is still particularly

needed for specific sociodemographic groups, particularly those unemployed. Health care providers, particularly at primary care level, should be made aware of the barriers and risk factors for not seeking treatment, and their screening and treatment skills should be improved, through reliable and accurate screening measures and continuous mental health education and supervision (18). Overall, this study may support the development of mental health services and policies to promote an equitable access to mental health care in the Portuguese National Health Service.

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Compliance with Ethical Standards

Ethical approval

All procedures performed in studies involving human participants were in accordance with the ethical standards of the Ethics Committee of the Nova Medical School, Nova University of Lisbon (ref. 10/2008), and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Informed consent

Informed consent was obtained from all individual participants included in the study.

Disclosure statement

No potential conflict of interest was reported by the author(s).

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How did the use of psychotropic drugs change during the Great Recession in Portugal? A follow-up to the National Mental Health Survey

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How did the use of psychotropic drugs change during the Great Recession in Portugal? A follow-up to the National Mental Health Survey

Abstract

Background: Research suggests that economic recessions might be associated with a higher use of psychotropic drugs, but literature is scarce and contradictory in identifying the most vulnerable groups. This study aims to assess possible changes in the use of psychotropic drugs due to the economic recession in Portugal, by comparing self-reported consumption in 2008/09 and 2015/16.

Methods: Data from the World Mental Health Survey Initiative Portugal (2008/09) and the National Mental Health Survey Follow-Up (2015/16) were used (n=911). McNemar's tests were performed to estimate changes in consumption of any psychotropic drug and of antidepressants, anxiolytics, and hypnotics/sedatives. Multiple Generalised Estimating Equations models with interaction effects were used to estimate the population odds of consuming psychotropic drugs according to year, gender and age.

Results: An increase of 6.74% was estimated in the consumption of psychotropic drugs from 2008/09 to 2015/16. Population odds of consuming any psychotropic drugs in 2015/16 were estimated to be 1.5 times higher than in 2008/09 (OR = 1.50; 95% CI: 1.13-2.01), particularly for hypnotics/sedatives (OR = 1.60; 95% CI: 1.14-2.25). Women and older individuals presented higher odds of consuming any psychotropic drugs (OR = 2.79; 95% CI: 2.03-3.84, and OR = 1.80; 95% CI: 1.28-2.54), after adjusting for year of assessment and education. However, when evaluating the interaction effect of the year with gender and age, men and younger individuals reported higher odds of consuming any psychotropic drugs in 2015/16, when compared to 2008/09 (OR = 1.85; 95% CI: 1.08-3.17, and OR = 1.95; 95% CI: 1.32-2.90, respectively).

Conclusions: The findings indicate that the period of economic recession was associated with an increased risk of psychotropic drugs use in Portugal. Consumption of psychotropic drugs remained higher among women and older individuals, but the results suggest that the

economic crisis had a disproportionate impact on men and younger individuals. This identification of the most vulnerable population groups is useful to design effective and targeted public health interventions aimed at alleviating the effects of economic recessions.

Keywords: psychotropic drugs; economic recession; gender; age; public health

Background

The 2008 global financial crisis precipitated the most severe economic recession to date, surpassing the Great Depression of the 1930s (1, 2). Among European countries, Portugal was particularly affected, in terms of decline in gross domestic product (GDP), rise of unemployment rates, and government deficit (3, 4). As part of the austerity policies, large cuts to public expenditure and to health and social budgets were made, and savings of €670 million were demanded from the Portuguese National Health Service, targeting care and drug expenditure, prescriptions, workforce, and user charges (3). A mix of cost-containment policies in the pharmaceutical sector was implemented, aiming to reduce the public expenditure on drugs from 1.55% of GDP in 2010 to 1% by the end of 2013 (3, 5, 6). Measures included increase in co-payments for pharmaceuticals, generic drugs promotion campaigns, electronic prescription, and discounts granted to the public payer (3, 6, 7). These measures tend to shift the cost-burden to those who needed medicines, in a country where out-of-pocket payments already represented an important part of total health care expenditure (8, 9). Concerns arose about the unintended risk of less equitable access to needed medicines and "cost-related non-adherence" (10, 11).

The impact of economic crises on the use of mental health care is expected to be mixed. On the one hand, demand for mental health is likely to increase, and substantial research has shown that periods of economic recession can be damaging to mental health due to risk factors such as economic adversity (e.g. job and income loss) (12–15). On the other hand, mental health systems may not meet this growing need, due to fiscal austerity measures that reduce availability and affordability of services (12). Most findings suggest that during recessions prescriptions for psychotropic drugs rise (16–19), including those to treat

depressive and anxiety disorders (18, 20–23). Some studies didn't find this association (24, 25), but found a widening of consumption differences according to gender and age (25).

Several studies have examined patterns and trends of consumption of psychotropic drugs over the past decades, showing overall increases in utilisation, consistently higher among women and with older age, lower income and educational levels, and mental health care use within the past 12-months (26). Some possible explanations for gender differences in the use of psychotropic drugs were pointed out, such as representing a proxy for differences in the prevalence of mental disorders in women and men, reflecting the degree of gender inequality within a country, or denoting different healthcare-seeking behaviour, prescription preferences by mental health professionals and services, or health expenditure allocated to mental health care (26). Among classes of psychotropic drugs, antidepressants are the most widely and increasingly prescribed drugs, particularly among women and across older age groups (27).

Little is known about the impact of the Great Recession on changes in the pattern of consumption of psychotropic drugs in Portugal. Compared to other European countries, Portugal has higher rates of consumption of psychotropic drugs (28, 29), which may be partly explained by the fact that the country has one of the highest prevalences of mental disorders in Europe (30, 31). This high consumption has been recognised as a public health challenge (28), as it is largely based on anxiolytics, and hypnotics/sedatives. Available official data show a continuous increase in the prescription and dispensing of all subgroups of psychotropic drugs in the National Health Service between 2000 and 2016, especially antidepressants and antipsychotics (28, 32). This may reflect a greater accessibility to medicines, longer use, approval of new therapeutic indications (28), and the deterioration of the population's mental health, particularly common mental disorders. The increase in the prescription and utilisation of psychotropic drugs since the beginning of the economic recession suggests that the worsening of mental health problems and the need for medication exceeded the impact of changes in affordability. Available research evaluating the impact of pharmaceutical sector policies during this period focuses exclusively on consumption of antipsychotic drugs (7).

Given the scarce evidence and the public health importance of this topic in the Portuguese context, this study aims to assess possible changes in the use of psychotropic drugs indicated for the treatment of common mental disorders, the clinical situations predictably most

affected by economic recessions (13, 14). Self-reported consumption of psychotropic drugs, including antidepressants, anxiolytics, and hypnotics/sedatives, was evaluated before and after the economic recession in Portugal, accounting for gender and age differences. This research adds to the existing literature by comparing the use of psychotropic drugs by the same individuals before and after an economic recession, and the findings may provide valuable insights for targeted interventions and policy-making.

Methods

Design and study sample

This study used data from the National Mental Health Survey (T0) and the National Mental Health Survey Follow-Up (T1).

National Mental Health Survey (T0)

The National Mental Health Survey was conducted in 2008/09 as part of the World Mental Health Survey (WMHS) Initiative. This nationally representative cross-sectional survey was based on a stratified multistage clustered area probability household sample of Portuguese-speaking adults, aged 18 years or above, residing in permanent dwellings in the country's mainland.

A response rate of 57.3% was obtained, similar to the results in Belgium, France, Germany, and the Netherlands. The survey was administered by trained lay interviewers with a computer-assisted personal interview in a face-to-face setting, and the questionnaire was divided into two parts to reduce respondent burden. Part I was administered to all participants (n = 3849), and Part II to participants with criteria for any mental disorder, and to a probability sample of 25% randomly selected participants who did not meet these criteria (n = 2060). Part I included core diagnostic assessment of mental disorders, and Part II included the assessment of additional mental disorders, correlates and consequences of mental disorders, self-reported chronic conditions, and use of services.

Two different weightings were considered. Weighting procedures were applied to Part I data to adjust differential probabilities of selection between and within households, non-response

bias and discrepancies between the sample and the sociodemographic and geographic distribution of the Portuguese census population. Part II data were additionally weighted to adjust for differential sampling of Part I participants into Part II (33).

Informed consent was obtained from all respondents and all procedures were approved by the Ethics Committee of the Nova Medical School, Nova University of Lisbon (ref.: 10/2008). Further details regarding the study design, fieldwork procedures, and methodology can be found elsewhere (33).

National Mental Health Survey Follow-Up (T1)

In 2015/16, a follow-up of the National Mental Health Survey was conducted to compare epidemiological data on mental disorders, socioeconomic conditions, and use of services before and after the economic recession. Informed consent was obtained from participants and all procedures were approved by the Ethics Committee of the Nova Medical School, Nova University of Lisbon (ref.: 16/2015/CEFCM).

Fieldwork procedures were similar to those of the WMHS. All individuals with a mental disorder diagnosis in T0 and a 20% random sample of those without a diagnosis that had participated in Part II were recruited to the follow-up survey (n=911). A new weighting was created based on the Part II weighting previously described, to adjust for the differential probability of selection to the follow-up (34).

Measurements

Assessment of psychotropic drugs

The use of any psychotropic drugs in the previous 12 months, regardless of the presence of a clinical diagnosis, was evaluated in both T0 and T1. In both T0 and T1, participants were asked the same question: "Did you take any type of prescription medicine in the past 12 months for problems with your emotions, substance use, energy, concentration, sleep, or ability to cope with stress? Include medicines even if you took them only once". If so, participants were requested to indicate which of the medicines they had taken from a long list that included 1) antidepressants, 2) anxiolytics, and 3) hypnotics/sedatives.

Sociodemographic characteristics

Participants' sociodemographic characteristics, including gender, age, and educational level, were evaluated at baseline (T0). Age was assessed as a continuous variable and dichotomized into two categories (18-49 years of age versus >50 years of age at the baseline). Education is widely used as an indicator of socioeconomic position in epidemiological studies (35), and the number of years of educational attainment at the baseline (continuous variable) was used to adjust multivariate models.

Statistical analysis

Frequency tests and McNemar's tests for comparing marginal proportions were used for descriptive analyses. Multiple Generalised Estimating Equations (GEE) models were performed to estimate the population odds of consuming psychotropic drugs according to year, gender and age groups. The correlation between the observations among the paired measurements were considered as having an exchangeable structure, meaning that the correlations are identical but unknown (36).

The choice of the GEE models in this study was made since the same individuals were considered in T0 and T1 (i.e. repeated measures) and because of the interest in evaluating changes at the population level.

Odds ratios (OR) were estimated and interpreted at specific levels of the main effects and interaction terms considering differences in psychotropic drugs in both periods according to gender and age. The standard errors of the odds ratio estimates, used to obtain the confidence intervals, employed values from the variance-covariance matrix of the corresponding model fits. Estimates were weighted according to the characteristics of the study, as previously explained. A significance level of $\alpha = 0.05$ was used throughout the analysis. Data analysis was conducted using R version 3.5.1. The R package geepack was used to fit the GEE models (37, 38).

Results

The characteristics of the study sample at the baseline are presented in table 10.

	N (%) [1]
Gender	
Men	328 (49.6)
Women	583 (50.4)
Age	
18-49 at baseline	545 (59.8)
≥50 at baseline	366 (40.2)
	Mean (sd) [1]
Education (years)	9.22 (4.83)

[1] %, N unweighted; means and standard deviations (sd) estimated with weighting from follow-up study

Table 10 — Characteristics of the study sample

The results of the McNemar's tests, presented in table 11, indicate a significant increase in the percentage of individuals consuming any psychotropic drugs between T0 and T1 (6.74; 95% CI: 3.89-9.6). Statistically significant increases in the consumption of any psychotropic drugs were found among men (7.97%; 95% CI: 4.23-11.71), women (5.54%; 95% CI: 1.25-9.84), and younger individuals (9.85%; 95% CI: 5.9-13.79). Regarding specific types of psychotropic drugs, an estimated increase of 2.80% in the percentage of individuals reporting consumption of antidepressants was found from T0 to T1 (95% CI: 0.65-4.95). A statistically significant increase was also found for women, estimated around 3.75% (95% CI: 0.18-7.33). No statistically significant increase in the consumption of antidepressants was found among men, but the confidence interval obtained is marginally close to zero on its lower margin, which may suggest a tendency for an increase among this group. A statistically significant increase between T0 and T1 was also found in the percentage of younger individuals consuming antidepressants, estimated at around 4.72% (95% CI: 1.81-7.62). The percentage of individuals reporting consumption of hypnotics/sedatives had a statistically significant increase from T0 to T1, estimated at around 4.81% (95% CI: 2.30-7.31). The percentage of males reporting use of hypnotics/sedatives was also estimated to have increased around 7.30% (95% CI: 3.96-10.62). This tendency was also found in the percentage of younger individuals (18-49 years at baseline), estimated at around 5.84% (95% CI: 2.72-8.95). A statistically significant increase

between T0 and T1 was found in the percentage of younger individuals (18-49 years at baseline) taking anxiolytics, estimated at around 4.73% (95% CI: 1.21-8.24).

	Use in 2009 (%)	Use in 2015 (%)	Difference between 2009 and 2015 and respective 95%CI (%)[1]
Any psychotropic drug			
Population	20.9	28.2	6.74 (3.89-9.60)*
Gender			
Men	11.5	19.1	7.97 (4.23-11.71)*
Women	30.9	37.2	5.54 (1.25-9.84)*
Age			
18-49 at baseline	15.3	25.7	9.85 (5.90-13.79)*
≥50 at baseline	29.8	32.0	2.21(-1.76-6.18)
Antidepressants			
Population	8.3	11.0	2.80 (0.65-4.95)*
Gender			
Men	3.6	5.4	1.81 (-0.53-4.17)
Women	12.9	16.6	3.75 (0.18-7.33)*
Age			
18-49 at baseline	7.9	12.5	4.72 (1.81-7.62)*
≥50 at baseline	9.1	8.9	0.28 (-3.40-2.84)
Anxiolytics			
Population	12.3	14.5	2.36 (-0.32-5.04)
Gender			
Men	7.8	11.4	3.41 (-0.05-6.87)
Women	16.9	17.7	1.33 (-2.75-5.42)
Age			
18-49 at baseline	8.9	13.4	4.73 (1.21-8.24)*
≥ 50 at baseline	17.4	16.3	1.11 (-5.24-3.03)
Hypnotics/sedatives			
Population	11.4	16.9	4.81 (2.30-7.31)*
Gender			
Men	5.4	12.6	7.30 (3.96-10.62) *
Women	17.6	21.1	2.21(-1.51-5.92)
Age			
18-49 at baseline	7.0	13.8	5.84 (2.72-8.95)*
≥50 at baseline	18.2	21.5	3.31 (-0.86-7.47)

[1] McNemar's test % weighted CI: Confidence interval

* Statistical significance considered when 95%CI does not contain 0

Table 11 — Estimates of the use of psychotropic drugs in 2009, 2015 and the difference between those years

	OR	95% CI
Any psychotropic drug		
Year		
2015	1.50	1.13-2.01**
Gender		
Women	2.79	2.03-3.84***
Age		
≥ 50 at baseline	1.80	1.28-2.54***
Antidepressants		
Year		
2015	1.37	0.97-1.93
Gender		
Women	3.49	2.25-5.43***
Age		
≥ 50 at baseline	0.83	0.55-1.26
Anxiolytics		
Year		
2015	1.22	0.85-1.74
Gender		
Women	1.89	1.27-2.81**
Age		
≥ 50 at baseline	1.84	1.21-2.79**
Hypnotics/sedatives		
Year		
2015	1.60	1.14-2.25**
Gender		
Women	2.40	1.64-3.51***
Age		
≥ 50 at baseline	1.85	1.23-2.79**

Year 2009, gender men and age 18-49 at baseline considered as reference categories across all models
All analysis adjusted for education. ** p<0.01 *** p<0.001

Table 12 — Estimates of the use of psychotropic drugs obtained from multiple Generalised Estimating Equations models

The results of the GEE models, presented in table 12, indicate that the population odds of consuming any psychotropic drugs in T1 were estimated to be 1.5 times higher compared to T0 (OR = 1.50; 95% CI: 1.13-2.01), after adjusting for age, gender and education. Likewise, the population odds of consuming hypnotics/sedatives in T1 were estimated to be 1.6 times higher than in T0 (OR = 1.60; 95% CI: 1.14-2.25). Compared to men, women had an estimated 2.8 times higher odds of consuming any medication (OR = 2.79; 95% CI: 2.03-3.84), 3.5 times higher odds of consuming antidepressants (OR = 3.49; 95% CI: 2.25-5.43), 1.9 times higher odds of consuming anxiolytics (OR = 1.89; 95% CI: 1.27-2.81), and 2.4 times higher odds of consuming hypnotics/sedatives (OR = 2.40; 95% CI: 1.64-3.51), adjusting for age, year and education.

Compared to younger individuals, older individuals had an estimated 1.8 times higher odds of consuming any medication (OR = 1.80; 95% CI: 1.28-2.54), anxiolytics (OR = 1.84; 95% CI: 1.21-2.79), and hypnotics/sedatives (OR = 1.85; 95% CI: 1.23-2.79), adjusting for gender, year and education.

	OR	95%CI
Any psychotropic drug		
Gender * Year		
Men*2015	1.85	1.08-3.17*
Women*2015	1.34	0.96-1.87
Age * Year		
18-49 at baseline*2015	1.95	1.32-2.90*
≥ 50 at baseline*2015	1.13	0.74-1.71
Antidepressants		
Gender * Year		
Men*2015	1.51	0.69-3.31
Women*2015	1.32	0.91-1.93
Age * Year		
18-49 at baseline*2015	1.68	1.05-2.68*
≥ 50 at baseline*2015	0.99	0.61-1.60
Anxiolytics		
Gender * Year		
Men*2015	1.49	0.76-2.93
Women*2015	1.07	0.71-1.62
Age * Year		
18-49 at baseline*2015	1.59	0.96-2.65
≥ 50 at baseline*2015	0.92	0.56-1.52
Hypnotics/sedatives		
Gender * Year		
Men*2015	2.60	1.36-4.98*
Women*2015	1.26	0.85-1.89
Age * Year		
18-49 at baseline*2015	2.16	1.34-3.47*
≥ 50 at baseline*2015	1.25	0.78-2.01

Year 2009 considered as reference category across all models
All analysis adjusted for education
*confidence interval does not contain value 1

Table 13 — Estimates of the interaction effects of gender and year in the population odds of consumption

The interaction effects of gender and year in the population odds of consuming psychotropic drugs, presented in table 13, showed that the male population odds of consuming any psychotropic drugs in T1 were estimated to be 1.85 times higher when compared to T0 (OR = 1.85; 95% CI:1.08-3.17) and the odds of the male population consuming hypnotics/sedatives were estimated to be 2.60 times higher in T1 than in T0 (OR = 2.60; 95% CI: 1.36-4.98). The female population odds of consuming any psychotropic drugs in T1 were estimated to be 1.3 times higher than in T0, however without statistical significance (p >0.05). The results also showed that the younger group population odds of consuming any psychotropic drugs (OR = 1.95; 95% CI: 1.32-2.90), antidepressants (OR = 1.68; 95% CI: 1.05-2.68), and hypnotics/sedatives (OR = 2.16; 95% CI: 1.34-3.47) in T1 were higher when compared to the equivalent consumption in T0. No statistically significant results were found in the older population group.

Discussion

This study provides an assessment of self-reported consumption of psychotropic drugs in 2008/2009 and in 2015/16, which includes the period of economic recession in Portugal, recognising the importance of gender and age differences. The results show a significant increase in the use of psychotropic drugs during this period, particularly regarding the consumption of hypnotics/sedatives. These findings are in line with other studies about the impact of economic recessions on the consumption of psychotropic drugs (20, 22, 23). This increase may reflect a deterioration of the mental health of the Portuguese population during the economic recession, as found in epidemiological studies in other countries (13, 14), or higher perceived need of care (39-41).

The results are consistent with other research indicating that women consistently use psychotropic drugs more often than men (26, 27), and these gender differences were found for all the categories of psychotropic drugs (26). Higher consumption of psychotropic drugs was found in the older age group, also in line with studies that show higher prescription levels with increasing age (27).

However, it is important to highlight that males and younger individuals appear to have been affected disproportionately by the recession in terms of consumption of psychotropic drugs, since the odds of consuming any medication in 2015/16, when compared to 2008/09, were found to be higher in both groups. Higher odds of using hypnotics/sedatives in 2015/16 were found in men, and higher odds of consuming antidepressants, and hypnotics/sedatives were found in younger individuals. These findings are consistent with previous literature suggesting that recessions can be particularly damaging for the mental health of working age men (12, 15, 42). It has been argued that, during periods of economic recession, the deterioration of mental health outcomes is likely to be associated with individual-level economic shocks (e.g., job and income loss), which men are more likely to experience compared to women (15, 20, 22). Contributing factors may include shifts in labour markets (15), the disproportionate loss of jobs among men, poor job satisfaction, and an unsatisfactory atmosphere at work (43, 44). A more pronounced pressure to assume traditional role of breadwinners and for relative socioeconomic success, during a period in life when one may not be fully established in the labour market, offers some additional explanation on why unemployment and uncertainty about the future may have a stronger impact on men's mental health in recessions (45). This is particularly important because mental health care utilisation patterns differ by gender and seeking help for emotional problems appears to be a more important predictor for the use of psychotropic drugs than a formal DSM diagnosis (39). Consequently, gender differences in mental health treatment and prescription appropriateness may widen during periods of economic recession, and previous research has shown that men confronted with high job strain used anxiolytics significantly more often than women in similar conditions (26).

Regarding age, the greater increase in prescription drugs utilisation between both periods among the younger age group may suggest their increased vulnerability to the economic recession and associated risk factors. Younger workers are exposed to more precarious employment, defined as employment relations characterised by high uncertainty, low income, and reduced social benefits and statutory entitlements (46). Employment insecurity is associated with poorer mental health (47) and higher probability of psychotropic drugs prescription (46). Younger individuals were also disproportionately affected by unemployment during the recession in Portugal, with youth unemployment rates of almost 40% in 2014 (48).

Economically inactive groups such as students may also have had a deterioration of their living conditions. Furthermore, young individuals may adopt worse coping strategies to deal with adverse events, with the use of medication being a coping mechanism in times of uncertainty (43) or a compensatory health behaviour in the face of hardship (17).

Several limitations should be acknowledged when interpreting the findings. First, the results were based on self-reported use of psychotropic drugs, which could be subject to recall bias or have been over-reported by one gender or age group compared to the other. Second, the presence of a clinical diagnosis and the appropriateness of prescription were not evaluated, and psychotropic drugs may have been used without a formal DSM diagnosis, for a wide range of emotional problems, or patients with mental disorders may not have been treated with psychotropic drugs (39–41). Third, the assessment of age through a dichotomous variable was necessary due to the number of individuals in the study but limits the interpretation of results due to the heterogeneity of both groups. Lastly, the analyses did not include terms to account for time trends in drug prescription and/or the net effect of cost-containment pharmaceutical sector policies implemented during recession (11, 28), and it is not possible to state that there was an acceleration in the rate of increase in utilisation seen in past decades, nor if this increase was specific to psychotropic drugs.

Despite these limitations, research on the impact of the economic recession on the use of psychotropic drugs is still scarce, and the findings of this study present an innovative contribution to the literature by comparing self-reported consumption of psychotropic drugs, by following the same individuals before and after the economic recession, as well as by assessing differences according to gender and age. Additionally, the time-period of evaluation, which covered the previous 12 months, instead of point or 1- to 2-week prevalence used in most studies, allows to reduce the misclassification of those exposed to treatment, by including both regular users and those discontinuing therapy (26). This is particularly important for gender comparisons, as women are more likely than men to discontinue treatment in difficult socioeconomic situations (26).

Conclusions

This study adds to the literature by examining the impact of the 2008/2009 economic recession on the use of psychotropic drugs according to gender and age in Portugal. In line with the existing research, an increase in psychotropic drugs utilisation during the period of economic recession was found, with a disproportionate impact on men and younger individuals.

The findings, particularly the increase in the use of hypnotics/sedatives, constitute a public health concern given the already high consumption levels in the country, their limited therapeutic value, and the potential problems of dependence and tolerance. This highlights the importance of defining best prescribing practice recommendations and to invest in psychosocial interventions (49, 50). Further research is needed to better understand the adequacy of prescribing patterns in Portugal and to design effective public health and labour market policies to mitigate the impact of economic recessions, particularly among vulnerable groups.

Abbreviations

DSM: Diagnostic and Statistical Manual; GDP: Gross Domestic Product; GEE: Generalised Estimating Equations; OR: Odds ratio; WMHS: World Mental Health Survey

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Authors' contributions

MS conceptualised the study design, contributed to data analysis and interpretation, and drafted the manuscript. AA was a major contributor in conceptualising the study design, data analysis and interpretation, and critically reviewed the manuscript. SAL contributed to the statistical analysis. GC, MX, BS, and JMCA reviewed and approved the final manuscript. The author(s) read and approved the final manuscript.

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The funding bodies of both surveys were not involved in any aspect of the design of the study and collection, analysis, or interpretation of data and in writing the manuscript.

Availability of data and materials

The datasets analysed during the current study are part of the World Mental Health Survey Initiative, are not publicly available and the authors are not authorised to share them.

Ethics approval and consent to participate

All procedures performed in studies involving human participants were in accordance with the ethical standards of the Ethics Committee of the Nova Medical School, Nova University of Lisbon (reference numbers 10/2008 and 16/2015/CEFCM), and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Written informed consent was obtained from all individual participants included in the study.

Consent for publication

Not applicable.

Competing interests

The authors declare that they have no competing interests.

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3.4. Original research article n° 4

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Factors associated with length of stay and readmission in acute psychiatric inpatient services in Portugal.

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Factors associated with length of stay and readmission in acute psychiatric inpatient services in Portugal

Abstract

Assessing the factors that influence duration and number of hospitalisations may support mental health services planning and delivery. This study examines the factors associated with length of stay and readmission in Portuguese psychiatric inpatient services during 2002, 2007 and 2012.

Data from all admissions were extracted from clinical files. Logistic regression models estimated the association between length of stay (<17 vs ≥17 days) and number of admissions per year (1 vs >1 admission) with sociodemographic, clinical, and contextual factors.

Older age, a diagnosis of psychosis, and compulsory admission were associated with higher odds of longer length of stay. Being married, secondary education, suicide attempt, a diagnosis of substance use and "other mental disorders", being admitted in 2012, and two of the psychiatric inpatient services were associated with lower odds of longer length of stay.

Being retired (or others), a diagnosis of psychosis, compulsory admission, and psychiatric service were associated with increased odds of readmission. Older age, and secondary and higher education were associated with lower odds of readmission.

The findings indicate that multiple factors influence length of stay and readmission. Identifying these factors provides useful evidence for clinicians and policy makers to design more targeted and cost-effective interventions.

Keywords: mental health services; hospitalisation; health policy; social inequalities

Introduction

Mental health services are the means by which effective mental health care interventions are delivered (1) and are vital in reducing the burden of mental disorders. In the last few decades, the process of deinstitutionalization and development of a range of community services

represented a profound transformation in mental health care in many countries (2). Evidence supports a balanced care model, in which services are provided in normal community settings close to the population served, "while hospital stays are as brief as possible, promptly arranged and used only when necessary" (3, p. 5). This has led to marked changes in psychiatric hospitalisation, with crisis-oriented admissions and significant reductions in the length of stay in acute psychiatric facilities (4, 5). More recently, major motivations for early discharges include efforts to contain costs and improve the cost-effectiveness of care (5–7). Length of stay (LOS) is considered an important indicator of quality and efficiency in health service delivery (8), and readmission an indicator of quality and continuity of care (9). Some argue that a reduction in hospital stay may compromise the quality of hospital care and lead to readmissions, which can be detrimental to recovery, while others suggest longer stays may be harmful by institutionalizing people in hospital care (6, 7, 10, 11). The available evidence indicates that short-stay hospitalisation (of fewer than 28 days) favors social functioning (11), and is unrelated to adverse outcomes or to a 'revolving door' pattern of admissions (11, 12), but data is scarce, outdated, and of low quality (11). Most recent literature reports an average LOS for psychotic and major affective disorders of 1–2 weeks, with little evaluation of its potential benefits, limitations, and risks (4, 7).

When considering the factors that influence LOS, research suggests an association with (1) the clinical (e.g. psychiatric diagnosis, legal status/compulsory admission, severity, comorbidities) and (2) sociodemographic characteristics of patients (e.g. age, gender, education), as well as with (3) the characteristics of hospitals or of the health care system (e.g. type of hospital) (5, 13). Systematic reviews found that mood and psychotic disorders, female gender, use of restraints during hospitalisation, and larger hospital size were associated with longer LOS, while substance use, being married, being employed, and discharge against medical advice were associated with a shorter LOS (14, 15).

Factors influencing readmission have been grouped into six categories: (1) patients' demographic, social and economic characteristics, (2) clinical characteristics, (3) clinical history, (4) attitudes and perception, (5) environmental, social, and hospital characteristics, and (6) admission and discharge characteristics (16, 17). A systematic review found that the most consistently significant predictor of readmission was previous hospitalisation, while a general

protective role was attributed to having social support and carer's support, as well as to a positive attitude or satisfaction with treatment on the part of the patient (16). Another systematic review suggested that a longer LOS and providing community aftercare were associated with lower readmission rates (17).

In Portugal, universal health care is provided by a public National Health Service (18). In 2008, a national mental health plan was launched to reorganise the delivery of services, whose core values were deinstitutionalization, development of mental health services with inpatient wards in general hospitals and most services in the community, and integration of psychiatric treatment at the primary care level (19). The national mental health plan identified several limitations of the mental health system, such as shortages in terms of accessibility and resources, hospital-centered care, and insufficient preventive measures (20). Currently, the organisation of services remains a critical aspect of mental health care (21). Few psychiatric departments have community-based teams, and there is a lack of rehabilitation, long-term care, and residential facilities. The public mental health care services that are responsible for acute hospitalisations absorb most of the mental health budget (20) and are of two types: psychiatric hospitals and local mental health care services based in general hospitals. Both types have a catchment area and their inpatient wards are tasked with the psychiatric admissions within a given geographical area. In 2016, the national average LOS for psychiatric diagnoses was 18.4 days (21), compared to 9.0 days for all diagnoses (8), following the trend of longer LOS for mental disorders than for physical disorders found in other countries (13). Information is scarce regarding the factors that influence higher LOS and readmission in the Portuguese context.

The objectives of this study were to assess the sociodemographic, clinical, and contextual factors associated with a longer psychiatric inpatient length of stay and readmission in Portuguese acute psychiatric inpatient services. A better understanding of these factors might help to identify the patients at higher risk of longer hospital stays and readmission, allowing mental health professionals to allocate these patients to more targeted and cost-effective services, avoiding secondary effects of long-term and frequent hospitalisation, as well as unnecessary costs.

Methods

Design and study sample

This retrospective cross-sectional study was based on a clinical record review. The data sources were the inpatient clinical files of all patients from five public psychiatric departments which had at least one admission during 2002, 2007, and 2012. The objective was to assess the use of mental health services in times of economic crisis, consequently, the years were selected to represent periods before the economic crisis (2002 and 2007) and the period of economic crisis (2012). Information was recorded in a systematic manner through structured data collection and patients were not assessed directly. Inpatients for scheduled procedures, such as electroconvulsive therapy, were excluded. The study was conducted in psychiatric departments in the Metropolitan Areas of Lisboa and Porto and the region of Baixo Alentejo. The study areas of this research and the psychiatric departments are briefly described in table 14. They covered municipalities with distinct geographical and socioeconomic characteristics, and included consolidated urban areas (Lisboa and Porto), recent urban growth areas with low socioeconomic status characteristics - high levels of unemployment and low levels of education (Amadora), recent urban growth areas with high socioeconomic status characteristics - low levels of unemployment and high levels of education (Oeiras, Póvoa de Varzim and Vila do Conde), and rural areas (Aljustrel, Almodoôvar, Alvito, Barrancos, Beja, Castro Verde, Cuba, Ferreira do Alentejo, Mafra, Mértola, Moura, Ourique, Serpa, and Vidigueira). The population density varied between 16 and 7,551 inhabitants per square kilometre in 2001 and between 15 and 7,368 in 2011, according to the 2001 and 2011 Census of Statistics Portugal (22, 23). The study areas are also very different in their ageing index, which varied between 94 and 176 individuals aged 65 or older per 100 aged 0 to 14 years in 2001, and between 126 and 189 in 2011 (22, 23). Patients living in the catchment area of each hospital were admitted to the respective department, with the exception of Unidade Local de Saúde do Baixo Alentejo, EPE, which had no acute inpatient service, and whose patients were admitted to Centro Hospitalar Psiquiátrico de Lisboa (180 kms away) after evaluation in the local emergency department. The selected psychiatric departments are quite different from each other and underwent significant changes between 2002 and 2012. Two of them (Centro Hospitalar Psiquiátrico de Lisboa and Hospital de Magalhães Lemos, EPE) are large

psychiatric hospitals with a pavilion organisation, large catchment areas, and were opened in 1942 and in 1962, respectively (24). Two others (Centro Hospitalar de Lisboa Ocidental, EPE and Hospital Professor Doutor Fernando Fonseca, EPE) were created more recently (1980 and 1996), have multidisciplinary community teams, and are part of general hospitals (24). Unidade Local de Saúde do Baixo Alentejo, EPE was created in 1992, with community teams covering a large geographical area, and admissions to Centro Hospitalar Psiquiátrico de Lisboa. During the study period, mental health reform was underway in the country and the five psychiatric departments experienced major changes. The two psychiatric hospitals had an important reduction in the number of acute beds (Centro Hospitalar Psiquiátrico de Lisboa: 301 in 2005 and 134 in 2012; Hospital de Magalhães Lemos, EPE: 142 beds in 2005 and 99 in 2012), with less marked changes in the other departments (Centro Hospitalar de Lisboa Ocidental, EPE: 31 in 2005, and 24 in 2012; Hospital Professor Doutor Fernando Fonseca, EPE: 27 in 2005 and 29 in 2012; Unidade Local de Saúde do Baixo Alentejo, EPE with no acute inpatient service) (21, 25). Available information from 2005 showed differences between the psychiatric departments in bed occupancy rates (Centro Hospitalar Psiquiátrico de Lisboa: 66%; Hospital de Magalhães Lemos, EPE: 65%; Centro Hospitalar de Lisboa Ocidental, EPE: 91%; and Hospital Professor Doutor Fernando Fonseca, EPE: 85%) (21, 25). New psychiatric departments were created in the Metropolitan Areas of Lisboa and Porto between 2002 and 2012, with consequent reductions in the catchment area of some of these five psychiatric departments (Centro Hospitalar Psiquiátrico de Lisboa, Hospital de Magalhães Lemos, EPE, and Centro Hospitalar de Lisboa Ocidental, EPE). During the study period, all these psychiatric departments underwent changes in the organisation of the care provided and in human resources, and witnessed the development of new facilities in the community, such as new teams, day-centers, and sheltered residences.

The research was approved by the ethics committee of each hospital, and the confidentiality of all the information gathered was ensured.

This study integrated the research project "Mental Health, Impact Assessment of Local and Economic Constraints - SMAILE", funded by the Foundation for Science and Technology (PTDC/ATP-GEO/4101/2012).

		Hospital Professor Doutor Fernando Fonseca, EPE	Centro Hospitalar de Lisboa Ocidental, EPE	Centro Hospitalar Psiquiátrico de Lisboa	Hospital de Magalhães Lemos, EPE	Unidade Local de Saúde do Baixo Alentejo, EPE
Characteristics of the hospital		General hospital with community teams	General hospital with community teams	Psychiatric Hospital	Psychiatric Hospital	General hospital
Study areas (Municipalities)		Amadora	Lisboa (Western parishes) and Oeiras	Lisboa (Eastern parishes) and Mafra	Porto, Póvoa de Varzim and Vila do Conde	Aljustrel, Almodôvar, Alvito, Barrancos, Beja, Castro Verde, Cuba, Ferreira do Alentejo, Mértola, Moura, Ourique, Serpa, Vidigueira
Resident population in the study areas (inhabitants)	2001	175,872	212,386	199,160	284,971	135,105
	2011	175,136	218,208	213,863	279,310	126,692
Population growth between 2001 and 2011 (%)		–0.4	2.7	7.4	–2.0	–6.2
Population density (inhabitant/Km2)	2001	7,551	3,613	792	1,121	16
	2011	7,368	3,704	848	1,098	15
Ageing index (individuals aged 65 or older per 100 aged 0 to 14 years)	2001	94	132	173	97	176
	2011	126	142	151	128	189
Unemployment rate (%)	2001	7.7	6.4	5.6	6.4	12.1
	2011	14.9	10.8	10.7	14.4	15.1
Population with higher education (%)	2001	12.0	19.4	10.3	7.2	3.0
	2011	17.9	32.8	19.3	13.5	6.2

Table 14 — Characterisation of the study areas and psychiatric departments

Measurements

Dependent variables

The two dependent variables were the length of hospital stay and the number of hospital admissions. The LOS for each admission was calculated as the number of days that elapsed between admission and discharge. The number of admissions to the same hospital in each year were extracted for each inpatient. Both variables were dichotomized using the median to characterise the type of psychiatric hospitalisation. Longer LOS was defined as an admission equal to or greater than 17 days. Readmission was characterised as more than one hospitalisation in each year.

Independent variables

The independent variables included the participants' individual characteristics, year of admission, and hospital.

For each admission, information on the patients' sociodemographic and clinical characteristics, such as age, gender, marital status, education, employment status, psychiatric diagnosis, suicide attempt, and compulsory admission were extracted. Age was grouped into four categories (15-29; 30-49; 50-64; ≥65 years). Marital status was categorized into three groups (single; married/cohabitating; divorced/separated/widowed). Education was divided into four categories [none/primary education (≤ 4 years); basic education (5-9 years); secondary education (10-12 years); higher education (>12 years)]. Employment status was assessed into three categories [workers (including on sick leave)/students; unemployed; retired/others (including homemakers)].

Psychiatric main diagnoses were established according to the International Classification of Diseases, 9th revision, and categorized into five groups: mood and anxiety disorders; dementia; substance use disorders; psychosis; other mental disorders.

The years of evaluation were 2002, 2007, and 2012.

The data were retrieved from the above mentioned hospitals. The clinical files of the patients from Unidade Local de Saúde do Baixo Alentejo, EPE were obtained from Centro Hospitalar Psiquiátrico de Lisboa, where they were admitted.

Statistical analysis

Descriptive statistics were performed through frequencies and percentages. Multiple logistic regression models were used to estimate the association between both longer LOS (≥17 days) and readmission (>1 admission) with sociodemographic, clinical, and contextual factors under study. Statistical significance was assessed by 95% confidence intervals (95%CI). Data analysis was conducted using the Statistical Package for Social Sciences (SPSS) version 23.0.

Results

Descriptive statistics

The characteristics of the study sample (n=3872) are presented in table 15.

Longer LOS was found in 48.3% (n=1872) of the patients and 18.3% (n=709) had more than one admission in a year. The characteristics of the study sample relating to the number of hospital admissions and length of hospital stay are presented in table 16.

Sociodemographic characteristics	n	%
Gender		
Women	1977	51.1
Men	1894	48.9
Age		
15-29	679	17.5
30-49	1802	46.5
50-64	826	21.3
>=65	565	14.6
Marital status		
Single	1702	45.5
Married/cohabitating	1222	32.6
Divorced/separated/widowed	819	21.9
Education		
None or primary education	773	31.9
Basic education	858	35.4
Secondary education	404	16.7
Higher education	390	16.1
Employment status		
Workers or students	1076	31.3

Unemployed	915	26.6
Retired or others	1445	42.1
Clinical characteristics		
Psychiatric diagnosis		
Dementia	204	5.3
Substance use disorders	335	8.7
Psychosis	1269	33.0
Mood and anxiety disorders	1603	41.7
Other mental disorders	433	11.3
Suicide attempt		
Yes	610	16.4
No	3117	83.6
Compulsory admission		
Yes	647	17.2
No	3119	82.8
Contextual characteristics		
Year		
2002	1188	30.7
2007	1309	33.8
2012	1375	35.5
Psychiatric service		
Centro Hospitalar de Lisboa Ocidental, EPE	523	13.5
Hospital de Magalhães Lemos, EPE	1556	40.2
Centro Hospitalar Psiquiátrico de Lisboa	991	25.6
Hospital Professor Doutor Fernando Fonseca, EPE	462	11.9
Unidade Local de Saúde do Baixo Alentejo, EPE	340	8.8

Table 15 — Descriptive statistics of the sociodemographic, clinical and contextual characteristics of the SMAILE study sample

	Admissions		LOS	
	1 admission % (n)	>1 admission % (n)	<17 days % (n)	≥ 17 days % (n)
Sociodemographic characteristics				
Gender				
Women	52.4 (n=1657)	45.1 (n=320)	51.5 (n=1025)	50.5 (n=946)
Men	47.6 (n=1505)	54.9 (n=389)	48.5 (n=965)	49.5 (n=926)
Age				
15-29	17.5 (n=555)	17.5 (n=124)	19.5 (n=388)	15.3 (n=287)
30-49	45.6 (n=1443)	50.6 (n=359)	48.8 (n=972)	44.1 (n=826)
50-64	21.5 (n=681)	20.5 (n=145)	19.7 (n=392)	23.1 n=433)
>=65	15.3 (n=484)	11.4 (n=81)	12.0 (n=239)	17.4 (n=326)
Marital status				
Single	44.3 (n=1358)	50.8 (n=344)	42.4 (n=811)	48.4 (n=883)
Married/cohabitating	33.4 (n=1025)	29.1 (n=197)	36.2 (n=692)	29.1 (n=530)
Divorced/separated/widowed	22.3 (n=683)	20.1 (n=136)	21.4 (n=408)	22.5 (n=411)
Education				
None or primary education	31.0 (n=610)	35.5 (n=163)	29.1 (n=355)	34.7 (n=416)
Basic education	34.3 (n=674)	40.1 (n=184)	36.3 (n=444)	34.5 (n=413)
Secondary education	17.6 (n=346)	12.6 (n=58)	19.0 (n=232)	14.4 (n=172)
Higher education	17.1 (n=336)	11.8 (n=54)	15.6 (n=191)	16.4 (n=197)
Employment status				
Workers or students	32.3 (n=907)	27.0 (n=169)	35.0 (n=610)	27.5 (n=464)
Unemployed	26.5 (n=744)	27.4 (n=171)	29.1 (n=508)	24.0 (n=405)
Retired or others	41.3 (n=1160)	45.6 (n=285)	35.9 (n=625)	48.5 (n=817)
Clinical characteristics				
Psychiatric diagnosis				
Dementia	5.5 (n=172)	4.6 (n=32)	4.1 (n=80)	6.6 (n=124)
Substance use disorders	8.8 (n=277)	8.3 (n=58)	11.1 (n=219)	6.2 (n=116)
Psychosis	31.5 (n=990)	39.9 (n=279)	23.5 (n=463)	43.0 (n=803)

Mood and anxiety disorders	43.1 (n=1354)	35.6 (n=249)	47.1 (n=929)	36.1 (n=674)
Other mental disorders	11.2 (n=352)	11.6 (n=81)	14.3 (n=283)	8.0 (n=149)
Suicide attempt				
Yes	16.6 (n=507)	15.3 (n=103)	21.4 (n=412)	11.0 (n=198)
No	83.4 (n=2547)	84.7 (n=570)	78.6 (n=1513)	89.0 (n=1601)
Compulsory admission				
Yes	15.5 (n=479)	24.6 (n=168)	10.7 (n=208)	24.3 (n=439)
No	84.5 (n=2605)	75.4 (n=514)	89.3 (n=1745)	75.7 (n=1371)
Contextual characteristics				
Year				
2002	31.0 (n=979)	29.3 (n=208)	29.2 (n=581)	31.9 (n=598)
2007	33.4 (n=1056)	35.8 (n=254)	34.1 (n=679)	33.7 (n=631)
2012	35.7 (n=1128)	34.8 (n=247)	36.7 (n=731)	34.3 (n=643)
Psychiatric service				
Centro Hospitalar de Lisboa Ocidental, EPE	14.5 (n=460)	8.9 (n=63)	10.3 (n=205)	16.6 (n=311)
Hospital de Magalhães Lemos, EPE	40.2 (n=1270)	40.3 (n=286)	40.9 (n=814)	39.6 (n=742)
Centro Hospitalar Psiquiátrico de Lisboa	25.7 (n=814)	25.0 (n=177)	29.2 (n=581)	21.8 (n=409)
Hospital Professor Doutor Fernando Fonseca, EPE	10.6 (n=334)	18.1 (n=128)	11.2 (n=223)	12.7 (n=238)
Unidade Local de Saúde do Baixo Alentejo, EPE	9.0 (n=285)	7.8 (n=55)	8.4 (n=168)	9.2 (n=172)

Table 16 — Characteristics of the study sample according to the number of hospital admissions and length of hospital stay

Association between longer LOS and sociodemographic, clinical, and contextual variables

The results of the first logistic regression model are presented in table 17. Patients in the age groups of 50-64 and ≥65 had 1.82 and 1.91 higher odds of a longer LOS when compared to patients aged 15-29 years, respectively (OR = 1.82; 95% CI: 1.31-2.53 and OR = 1.91; 95% CI: 1.23-2.97). Patients with psychosis had 1.76 times higher odds of a longer LOS than those with mood and anxiety disorders (OR = 1.76; 95% CI: 1.40-2.22). Patients with a compulsory admission had 2.7 times higher odds of a longer LOS than those with no compulsory admission (OR = 2.70; 95% CI: 2.10-3.48). Married individuals showed a 40% decrease in the odds of a longer LOS when compared to single ones (OR = 0.60; 95% CI: 0.47-0.76). Patients with a secondary education showed a 41% decrease in the odds of a longer LOS when compared with patients with primary education or none (OR = 0.59; 95% CI: 0.44-0.79). Patients with a diagnosis of substance use showed a 30% decrease in the odds of a longer LOS when compared with patients with mood and anxiety disorders (OR = 0.70; 95% CI: 0.49-0.99), with the same pattern being found in patients with other mental disorders (OR = 0.65; 95% CI: 0.47-0.88). Patients with a suicide attempt had 33% lower odds of a longer LOS than patients with no suicide attempt (OR = 0.67; 95% CI: 0.52-0.86). Patients admitted in 2012 had 29% lower odds of a longer LOS than patients admitted in 2002 (OR = 0.71; 95% CI: 0.56-0.90). Patients from Hospital de Magalhães Lemos, EPE and Centro Hospitalar Psiquiátrico de Lisboa had 47% and 61% lower odds of a longer LOS than patients from Centro Hospitalar de Lisboa Ocidental, EPE, respectively (OR = 0.53; 95% CI: 0.39-0.73 and OR = 0.39; 95% CI: 0.28-0.54).

Sociodemographic characteristics	OR	95%CI
Gender		
Women	Ref.	
Men	0.95	0.78-1.15
Age		
15-29	Ref.	
30-49	1.25	0.97-1.61
50-64	1.82	1.31-2.53 ***
>=65	1.91	1.23-2.97 **
Marital status		
Single	Ref.	
Married/cohabitating	0.60	0.47-0.76 ***
Divorced/separated/widowed	0.83	0.64-1.09
Education		
None or primary education	Ref.	
Basic education	0.81	0.64-1.03
Secondary education	0.59	0.44-0.79 ***
Higher education	0.76	0.57-1.02
Employment status		
Workers or students	Ref.	
Unemployed	0.94	0.74-1.19
Retired or others	1.14	0.89-1.46
Clinical characteristics		
Psychiatric diagnosis		
Mood and anxiety disorders	Ref	
Dementia	1.37	0.84-2.23
Substance use disorders	0.70	0.49-0.99 *
Psychosis	1.76	1.40-2.22 ***
Other mental disorders	0.65	0.47-0.88 **
Suicide attempt		
Yes	0.67	0.52-0.86 **
No	Ref.	
Compulsory admission		
Yes	2.70	2.10-3.48 ***
No	Ref.	
Contextual characteristics		
Year		
2002	Ref.	
2007	0.79	0.63-1.01
2012	0.71	0.56-0.90 **
Psychiatric service		
Centro Hospitalar de Lisboa Ocidental, EPE	Ref.	
Hospital de Magalhães Lemos, EPE	0.53	0.39-0.73 ***
Centro Hospitalar Psiquiátrico de Lisboa	0.39	0.28-0.54 ***
Hospital Professor Doutor Fernando Fonseca, EPE	0.88	0.58-1.32
Unidade Local de Saúde do Baixo Alentejo, EPE	0.69	0.47-1.03

* p<0.05; ** p<0.01; ***p<0.001

Table 17 — Association between longer LOS (≥17 days) and sociodemographic, clinical and contextual characteristics of the study sample

Association between readmission and sociodemographic, clinical and contextual variables

The results of the second logistic regression model are presented in table 18. Retired (or other) patients had odds of readmission 1.55 times greater than the odds of readmission of workers or students (OR = 1.55; 95% CI: 1.14-2.09). Patients with psychosis had 1.38 times higher odds of readmission than those with mood and anxiety disorders (OR = 1.38; 95% CI: 1.04-1.84). Patients with a compulsory admission had 1.74 times greater odds of readmission than those with no compulsory admission (OR = 1.74; 95% CI: 1.33-2.29). Patients from Hospital de Magalhães Lemos, EPE (OR = 1.84; 95% CI: 1.18-2.88;), Centro Hospitalar Psiquiátrico de Lisboa (OR = 2.12; 95% CI: 1.34-3.36), Hospital Professor Doutor Fernando Fonseca, EPE (OR = 3.47; 95% CI: 2.05-5.88), and Unidade Local de Saúde do Baixo Alentejo, EPE (OR = 1.76; 95% CI: 1.03-3.01) presented higher odds of readmission when compared with those from Centro Hospitalar de Lisboa Ocidental, EPE.

Patients ≥65 showed a 49% decrease in the odds of readmission when compared with those aged 15-29 years old (OR = 0.51; 95% CI: 0.29-0.90). Patients with secondary and higher education had 43% and 42% lower odds of readmission than those with none or primary education, respectively (OR = 0.57; 95% CI: 0.39-0.82 and OR = 0.58; 95% CI: 0.39-0.85).

Sociodemographic characteristics	OR	95%CI
Gender		
Women	Ref.	
Men	1.14	0.90-1.45
Age		
15-29	Ref.	
30-49	1.13	0.83-1.54
50-64	0.87	0.58-1.30
>=65	0.51	0.29-0.90 *
Marital status		
Single	Ref.	
Married/cohabitating	0.91	0.67-1.22
Divorced/separated/widowed	1.16	0.84-1.59
Education		
None or primary education	Ref.	
Basic education	0.87	0.66-1.15
Secondary education	0.57	0.39-0.82 **
Higher education	0.58	0.39-0.85 **
Employment status		
Workers or students	Ref.	
Unemployed	1.07	0.80-1.44
Retired or others	1.55	1.14-2.09 **
Clinical characteristics		
Psychiatric diagnosis		
Mood and anxiety disorders	Ref.	
Dementia	1.46	0.78-2.73
Substance use disorders	1.48	0.97-2.24
Psychosis	1.38	1.04-1.84 *
Other mental disorders	0.13	0.77-1.66
Suicide attempt		
Yes	1.32	0.97-1.80
No	Ref.	
Compulsory admission		
Yes	1.74	1.33-2.29 ***
No	Ref.	
Contextual characteristics		
Year		
2002	Ref.	
2007	1.18	0.88-1.59
2012	1.12	0.83-1.51
Psychiatric service		
Centro Hospitalar de Lisboa Ocidental, EPE	Ref.	
Hospital de Magalhães Lemos, EPE	1.84	1.18-2.88 **
Centro Hospitalar Psiquiátrico de Lisboa	2.12	1.34-3.36 ***
Hospital Professor Doutor Fernando Fonseca, EPE	3.47	2.05-5.88 ***
Unidade Local de Saúde do Baixo Alentejo, EPE	1.76	1.03-3.01 *

* p<0.05; ** p<0.01; ***p<0.001

Table 18 — Association between readmission (>1) and sociodemographic, clinical and contextual characteristics of the study sample

Discussion

This study collected routine data from all the acute inpatients from five psychiatric departments serving different catchment areas in Portugal during 2002, 2007, and 2012 to examine the factors associated with a longer length of stay and readmission. The results indicated that several heterogeneous factors influence LOS and the number of admissions in a year.

In this research, older age, a diagnosis of psychosis, and compulsory admission were associated with longer LOS. Being married, having a secondary education, a diagnosis of substance use disorder and "other mental disorders", a suicide attempt, being admitted in 2012, and belonging to the catchment area of two of the acute psychiatric inpatient services evaluated (Hospital de Magalhães Lemos, EPE and Centro Hospitalar Psiquiátrico de Lisboa) were associated with a shorter LOS. Retired (or other), psychotic, and patients with a compulsory admission presented higher odds of having more than one admission within a year. The same was found for all patients belonging to any psychiatric service in comparison with Centro Hospitalar de Lisboa Ocidental, EPE. Older age and having a secondary or higher education were associated with a lower number of hospital admissions. Gender was not significantly associated with either LOS or number of admissions.

These findings are in line with prior research. Older age has been associated with an increased LOS in most studies (5, 14, 26–29), but not all (13). Several factors may explain the longer LOS among elderly patients, such as poorer health (29), medical comorbidity, adverse drug reactions, or lack of social support (27). Compulsory admission has previously been associated with a longer LOS (5, 12, 26–28, 30), and probably points to the impact of illness severity and patient non-cooperation on LOS (26).

Among clinical factors, the finding that a diagnosis of psychosis was associated with a longer LOS is consistent with previous research (5–7, 12–15, 26, 29–32). Conversely, a diagnosis of substance use disorder (5, 6, 13, 15, 30, 33) and attempted suicide (31, 32) have consistently been associated with a reduced LOS. This may reflect that less time is required for stabilization and the control of acute symptoms in a substance use disorder (6), that patients are more likely to leave against medical advice following inpatient detoxification (5, 29), or that

countertransference issues among clinicians may influence discharge decisions regarding these patients (6). Additionally, it may also suggest the transient nature of psychotic symptoms in the context of substance misuse, with more rapid resolution upon admission to hospital (5). The association with attempted suicide may indicate that these patients have an illness course characterised by brief suicidal crises requiring a shorter duration of hospitalisation (31).

Prior research also found that being married is associated with a shorter LOS (14, 15), while being unmarried is associated with an increased LOS (5), pointing to the importance of a family network. Evidence on the association between educational level and LOS is mixed (5, 13, 15, 33). Authors argue that an adequate education level might reflect good coping skills, a good premorbid functional level (33), and higher socioeconomic status, contributing to a shorter inpatient stay (33), or, conversely, that psychiatrists have hope for greater improvement in patients with more education and have the tendency to postpone their discharge (15).

Previous research on the effect of the characteristics of hospitals and of the healthcare system on LOS is somewhat contradictory. Factors such as psychiatric hospitals *versus* general acute care facilities (5, 34), larger hospital size (5, 14), lower caseload volume (35), higher density of psychiatric beds (28), higher outpatient contact rate (27), comparatively more structured aftercare (7), or living in an area lacking community services (33) have been associated with an increased LOS. A shorter distance from the patient's place of residence to the hospital (5), higher hospital patient volume (28) and services with more psychologists, social workers, and psychiatric nurses in their staff (27) have been associated with a shorter LOS. This study found considerable differences in the LOS across acute psychiatric inpatient services. Some of this variation is probably due to patients' characteristics that have not been evaluated and controlled for, such as illness severity, but it also may reflect specific characteristics of the inpatient services, such as variability in human and structural resources (27), in treatment philosophies and practice patterns, and in efficiency of care provision (5). The characteristics of each hospital were not evaluated, and it is not possible to state which factors are associated with differences in LOS. It is interesting to verify that the results seem to indicate differences in LOS between Centro Hospitalar Psiquiátrico de Lisboa and Unidade Local de Saúde do Baixo Alentejo, EPE, despite all patients having been admitted to the first. Once more, this

may reflect patient-level differences (e.g. higher illness severity or a higher threshold for patient admission at Unidade Local de Saúde do Baixo Alentejo, EPE) or health care system-level differences (e.g. greater distance from the patient's place of residence to hospital, availability of community services).

The reason for the finding that being admitted in 2012 was associated with a reduced LOS is not clear. On the one hand, it may reflect the impact of the Great Recession on the use of mental health care in Portugal. The important social and economic changes that occurred during those years are likely to have been associated with increased psychiatric morbidity and increased demand for care (36), which may have led to higher bed occupancy rates and to increased pressure toward a shorter stay. On the other hand, the mental health reform was underway in the country during those years, with the development of mental health services in general hospitals and in the community, and the reduced LOS may also reflect positive changes that were occurring in the country's mental health system during this period (21). However, in this study we did not assess the changes in the provision of mental health care in these five psychiatric departments, or the changes in psychiatric morbidity in their catchment areas that could explain this finding.

It is important to point out that studies report great variability in median length of stay (5 days – 49 days), which raises questions about the definition of "short"/"long" LOS and suggests a heterogeneity in the factors influencing psychiatric admissions and their course (14). Despite this, longer stays may be detrimental to patients by isolating them from their social network, and initiating maladaptive processes (hospitalism) (13). It can also be a sign of poor care coordination or lack of rehabilitation or long-term care in the community (8). Strategies to reduce the LOS should include the development of community care services, financing methods encouraging care in the community, and better coordination between hospitals and post-discharge care settings (8).

Regarding the number of hospital admissions, previous research has shown that factors associated with a higher likelihood of psychiatric readmissions include mental health severity and chronicity markers, such as previous hospital admissions (16, 31, 33, 37, 38). Similarly, this study found that psychosis (31, 37, 38) and compulsory admission (39, 40) were associated with higher odds of readmission, highlighting severity as a major predictor of readmission. In line

with the finding that retired patients were more likely to be readmitted, Donisi et al. (16) found the presence of benefits or disability pension to be specifically associated with a higher likelihood of psychiatric readmissions. Older age was associated with a lower number of hospital admissions, in accordance with some previous studies (9, 16, 37, 39), but contradicting others (38, 41). According to Volpe et al. (9), this association may be mediated by higher levels of impulsivity and aggression among younger individuals that could influence the decision favoring inpatient treatment. The results regarding education are also consistent with previous research (16, 37), indicating the protective role of education in readmission. In this study, the number of hospital admissions also depended on the psychiatric inpatient service, suggesting the relevance of aspects that influence the decision to admit, such as the available number of beds, ideologies concerning hospitalisation and treatment (13), local economic pressures, regional and institutional variation, case-mix differences, and aspects of the physical environment (6).

Psychiatric readmissions are a common event that reflects the severity and chronicity of the underlying disorder, but also the quality of mental healthcare (9). Possible reasons for readmissions may include non-adherence to post-discharge therapeutic recommendations, obstacles in accessing outpatient post-discharge care, the natural periodicity of the disease, or chronicity and lack of therapeutic response (9). However, readmissions can occur even in areas with extensive community mental health centers, and despite optimal medication and psychoeducation (39). Strategies to reduce readmissions include adequate clinical stabilization during hospitalisation, effective discharge planning, bridging strategies (including assessments of patients' discharge needs, psychoeducation interventions, and more inpatient focus on patients' positive attitude or satisfaction with treatment, as well as the presence of social support) (6, 16), and access to community-based aftercare services (9).

The limitations of this study should be acknowledged. First, the independent variables were assessed based on a retrospective clinical record review, and some factors that could impact the LOS and readmission (such as illness severity, onset and duration of illness, level of functioning, medical history, and social support) could not be assessed. Second, although comorbidity has been associated with increased use of acute mental health services, only primary psychiatric diagnoses were examined due to inconsistent data in patients' records.

Third, the scarcity of published information regarding the characteristics of the psychiatric departments and the changes that occurred during the study period limits the comparison between hospitals. It also limits the assessment of potential system-related characteristics that may contribute to differences in the length of stay and readmissions (such as availability of beds, team characteristics, the care process - interventions of the community teams and inpatient interventions, and outpatient facilities and residential facilities in the community). Fourth, patients from Unidade Local de Saúde do Baixo Alentejo, EPE were admitted to Centro Hospitalar Psiquiátrico de Lisboa, which makes the interpretation of results more complex. Lastly, comparisons with other countries are limited due to marked differences in mental health services.

Despite these limitations, this research was conducted in several public hospitals, covering municipalities with distinct geographical and socioeconomic characteristics, and during three periods of time, enabling the identification of factors influencing longer LOS and readmission, and filling an important gap in the literature in the Portuguese context. Monitoring of these factors provides relevant information to support clinicians and policy makers. At the individual level, this assessment allows mental health teams to identify patients at higher risk of longer LOS and readmission, who may particularly benefit from careful discharge planning, and more targeted and individualized aftercare interventions (7, 32). When addressing the needs of this vulnerable population, greater attention should be paid to strategies that enhance continuity of care, reinforce treatment compliance, and improve support for and collaboration with families and social services (6, 33). A thorough assessment of these patients' needs, the access to post-discharge resources, such as community teams with case management, as well as the availability of alternatives to admission, including a day hospital programme, day care centers, and easy access to outpatient clinics, are resources that may be useful in achieving a reduction of the duration and number of hospitalisations.

Additionally, this study suggests substantial variation in LOS and readmission across psychiatric inpatient services, after adjusting for patients' individual factors, which is a strong indication of the importance of the health care system and contextual characteristics. A deeper understanding of the model of inpatient psychiatric care itself and other health care

system factors is needed to ensure better organisation of treatment and services for this vulnerable population (16, 39).

Future challenges include the development of a more robust and widespread provision of community aftercare facilities as an alternative to inpatient care, including day programmes, case management, outreach teams, and supervised accommodation, as these are the best solutions to ensure follow-up and prevent relapses.

As the current financing model for mental health care is hospital- and volume-based, favoring more frequent consultations and inpatient stays, new and more adequate payment mechanisms that incorporate incentives for appropriate community and social care should be implemented (20). The prevention of unnecessary hospitalisation days has a positive impact on patients, caregivers, and health expenditure. Further research is also crucial to set a balance between length of stay, number of hospitalisations, and satisfactory quality of care.

Ethical approval

Ethical approval was obtained by the Ethics Committees of Centro Hospitalar de Lisboa Ocidental, EPE, Hospital de Magalhães Lemos, EPE, Centro Hospitalar Psiquiátrico de Lisboa, Hospital Professor Doutor Fernando Fonseca, EPE, and Unidade Local de Saúde do Baixo Alentejo, EPE.

Author statement

MS conceptualised the study design, contributed to data analysis and interpretation, and drafted the manuscript. AA was a major contributor in conceptualising the study design, data analysis and interpretation, and critically reviewed the manuscript. AL and SAL contributed to data analysis and interpretation. BS, JMCA, and GC reviewed and approved the final manuscript. The author(s) read and approved the final manuscript.

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Declaration of Competing Interest

The authors declare that they have no conflict of interest.

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Factors associated with involuntary psychiatric hospitalization in Portugal

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Factors associated with involuntary psychiatric hospitalisation in Portugal

Abstract

Background

Identifying which factors contribute to involuntary psychiatric hospitalisation may support initiatives to reduce its frequency. This study examines the sociodemographic, clinical, and contextual factors associated with involuntary hospitalisation of patients from five Portuguese psychiatric departments in 2002, 2007 and 2012.

Methods

Data from all admissions were extracted from clinical files. A Poisson generalized linear model estimated the association between the number of involuntary hospitalisations per patient in one year and sociodemographic, clinical, and contextual factors.

Results

An increment of involuntary hospitalisations was associated with male gender [$\exp(\hat{\beta}) = 1.31$; 95%CI:1.06-1.62, $p<0.05$], having secondary and higher education [$\exp(\hat{\beta}) = 1.45$; 95%CI:1.05-2.01, $p<0.05$, and $\exp(\hat{\beta}) = 1.89$; 95%CI:1.38-2.60, $p<0.001$, respectively], a psychiatric diagnosis of psychosis [$\exp(\hat{\beta}) = 2.02$; 95%CI:1.59-2.59, $p<0.001$], and being admitted in 2007 and in 2012 [$\exp(\hat{\beta}) = 1.61$; 95%CI:1.21-2.16, $p<0.01$, and $\exp(\hat{\beta}) = 1.73$; 95%CI:1.31-2.32, $p<0.001$, respectively]. A decrease in involuntary hospitalisations was associated with being married/cohabitating [$\exp(\hat{\beta}) = 0.74$; 95%CI:0.56-0.99, $p<0.05$], having experienced a suicide attempt [$\exp(\hat{\beta}) = 0.26$; 95%CI:0.15-0.42, $p<0.001$], and belonging to the catchment area of three of the psychiatric services evaluated [$\exp(\hat{\beta}) =0.65$; 95%CI:0.49-0.86, $p<0.01$, $\exp(\hat{\beta}) = 0.67$; 95%CI:0.49-0.90, $p<0.01$, and $\exp(\hat{\beta}) = 0.67$; 95%CI:0.46-0.96, $p<0.05$ for Hospital de Magalhães Lemos, Centro Hospitalar Psiquiátrico de Lisboa and Unidade Local de Saúde do Baixo Alentejo, respectively].

Conclusions

The findings suggest that involuntary psychiatric hospitalisations in Portugal are associated with several sociodemographic, clinical, and contextual factors. This information may help identify high-risk patients and inform the development of better-targeted preventive interventions to reduce these hospitalisations.

Keywords

mental health services; involuntary psychiatric treatment; involuntary psychiatric hospitalisation; compulsory admission; health policy; health system

Background

The use of involuntary hospitalisation of people with mental disorders is a central and controversial issue in mental health care. For more than one hundred years, there has been a debate on how to balance different and often contradictory interests, such as the principle of personal freedom and basic human rights, the need for adequate treatment, and public safety (1, 2). Involuntary hospitalisation is now seen as the way to achieve the highest attainable standard of health when a severe exacerbation of illness impairs decision-making capacity (3), and can be lifesaving (4). However, it represents a deprivation of personal liberty and a suspension of legal capacity (5), and conflicts with the right to personal autonomy and to make decisions about one's own treatment (6). Existing observational studies suggest that involuntarily admitted patients show limited clinical and social improvement (7–11), with mixed evidence on the impact on suicidality (11, 12). At follow-ups, many of the patients view their admission and treatment positively (7, 8, 13, 14), but a substantial percentage of them retrospectively do not feel that the admission was justified and beneficial (7, 13). Empirical data suggest that involuntary hospitalisation may be experienced as traumatic and stigmatizing (15), lead to low levels of treatment satisfaction (4, 16), have negative effects on patient–therapist relationship (17), lead to long-term avoidance of mental health care (4, 15, 18), and increase the risk of emergency compulsory re-hospitalisation (19) and further coercive measures during the hospital stay (6, 20, 21). The United Nations (UN) Convention on the Rights of Persons with Disabilities (CRPD), the most up-to-date international legal instrument specifically tailored to stipulate the rights of persons with disabilities (22, 23, 24), sparked a

global debate (14, 23, 25–28) by considering that all persons have legal capacity at all times, irrespective of mental status, and that substitute decision-making and involuntary hospitalisation are indefensible (3, 23, 26, 29).

A central objective of legal frameworks for involuntary hospitalisations and their subsequent revisions was to minimise them (2, 30, 31). However, rates of involuntary hospitalisation have varied strikingly across and within countries in the past three decades (2, 32–34), with rates increasing over time in many countries (4, 19, 30, 35, 36). The factors influencing involuntary hospitalisation have been classified as: 1) individual-related factors, including the sociodemographic and clinical features of the affected persons and the attitudes and clinical competence of their caregivers; 2) system-related factors, including the organisation and resources of mental health care; and 3) area-related factors, including the national legislation, the wider societal perspective and traditions, socioeconomic factors, and economic changes (37, 38). The few data available on these risk factors are often controversial and difficult to interpret. Further research in this area is warranted (38).

A systematic review, meta-analysis, and narrative synthesis of 77 studies from 22 countries found that the factors most strongly associated with involuntary psychiatric hospitalisation are a diagnosis of a psychotic disorder and a previous involuntary hospitalisation (4). On a population level, a positive dose-response relation was found between area-level deprivation and increased rates of involuntary hospitalisation (4). Meta-analysis results also identified male gender, single marital status, unemployment, being in receipt of welfare benefits, and not owning one's own home as risk factors for involuntary admissions (4). Using narrative synthesis, the factors found to influence involuntary admissions were positive symptoms of psychosis, perceived risk to others, clinician-rated lack of insight, lack of adherence to treatment before hospitalisation, scant social support, and police (vs. family doctor) involvement in admission (4).

In Portugal, the 1998 Mental Health Act establishes the rights of people who are mentally ill and the principles that govern their compulsory detention (39, 40). This Act is currently under review to fully comply with the twin objectives of reducing coercive measures and enhancing patient autonomy. Portugal has relatively low annual rates of involuntary hospitalisation (6 per 100,000 individuals in 2000 and 18.19 per 100,000 individuals in 2013) (32, 34), but few national

data are available. To our knowledge, evidence on the risk factors for involuntary psychiatric hospitalisation in Portugal is scarce or non-existent. The purpose of this study is to identify sociodemographic, clinical, and contextual factors associated with a high risk of involuntary psychiatric hospitalisation of adults in Portugal. The identification of these factors could help better identify high-risk patients, develop more precise preventive interventions to reduce these hospitalisations, and ultimately develop less restrictive and less coercive alternatives.

Methods

Design and study sample

This study was part of the research project "Mental Health, Impact Assessment of Local and Economic Constraints - SMAILE", funded by the Foundation for Science and Technology (PTDC/ATP-GEO/4101/2012). This retrospective cross-sectional study is based on a detailed analysis of all inpatient mental health records from five adult public psychiatric departments during 2002, 2007 and 2012. The objective of this study was to assess the use of mental health services in times of economic crisis. Consequently, the years were selected to represent periods before the Great Recession (2002 and 2007) and the period of economic crisis (2012). The data of interest was extracted from patient clinical files in a systematic manner. Inpatients for electroconvulsive therapy were excluded. All other hospitalisations in the three years were included. The study was conducted in psychiatric departments in the Metropolitan Areas of Lisboa and Porto, and the region of Baixo Alentejo, described in Table 19. They were selected for the purpose of covering municipalities with distinct geographical and socioeconomic characteristics, and included consolidated urban areas (Lisboa and Porto), recent urban growth areas with low socioeconomic status characteristics (Amadora), recent urban growth areas with high socioeconomic status characteristics (Oeiras, Póvoa de Varzim and Vila do Conde), and rural areas (Aljustrel, Almodôvar, Alvito, Barrancos, Beja, Castro Verde, Cuba, Ferreira do Alentejo, Mafra, Me´rtola, Moura, Ourique, Serpa, and Vidigueira). Patients living in the catchment area of each hospital were admitted to the respective department, with the exception of Unidade Local de Saúde do Baixo Alentejo EPE, which had no acute inpatient service, and whose patients were admitted to Centro Hospitalar Psiquiátrico de Lisboa (180 kms away) after evaluation in the local emergency department. The psychiatric departments

where the study was conducted are quite different from each other and underwent significant changes between 2002 and 2012, as mental health reform was underway in the country. Two of the hospitals (Centro Hospitalar Psiquiátrico de Lisboa and Hospital de Magalhães Lemos EPE) are big psychiatric hospitals with a pavilion organisation and large catchment areas (41), and suffered an important reduction in the number of acute beds during the period under study (Centro Hospitalar Psiquiátrico de Lisboa: 301 in 2005 and 134 in 2012; Hospital de Magalhães Lemos, EPE: 142 beds in 2005 and 99 in 2012) (42, 43). Two other hospitals (Centro Hospitalar de Lisboa Ocidental EPE and Hospital Professor Doutor Fernando Fonseca EPE) have multidisciplinary community teams, belong to general hospitals (41), and experienced fewer significant changes during the study period. The Unidade Local de Saúde do Baixo Alentejo EPE also belongs to a general hospital, covers a large geographical area, and had no acute inpatient service.

The ethics committee of each hospital approved the research, and confidentiality of all information gathered was ensured.

		Hospital Professor Doutor Fernando Fonseca EPE	Centro Hospitalar de Lisboa Ocidental EPE	Centro Hospitalar Psiquiátrico de Lisboa	Hospital de Magalhães Lemos EPE	Unidade Local de Saúde do Baixo Alentejo EPE
Characteristics of the hospital		General hospital with community teams	General hospital with community teams	Psychiatric Hospital	Psychiatric Hospital	General hospital
Study areas (municipalities)		Amadora	Lisboa (Western parishes) and Oeiras	Lisboa (Eastern parishes) and Mafra	Porto, Póvoa de Varzim and Vila do Conde	Aljustrel, Almodôvar, Alvito, Barrancos, Beja, Castro Verde, Cuba, Ferreira do Alentejo, Mértola, Moura, Ourique, Serpa, Vidigueira
Resident population in the study areas (inhabitants)	2001	175,872	212,386	199,160	284,971	135,105
	2011	175,136	218,208	213,863	279,310	126,692
Population growth between 2001 and 2011 (%)		–0.4	2.7	7.4	–2.0	–6.2
Population density (inhabitant/Km2)	2001	7,551	3,613	792	1,121	16
	2011	7,368	3,704	848	1,098	15
Ageing index (individuals aged 65 or older per 100 aged 0 to 14 years)	2001	94	132	173	97	176
	2011	126	142	151	128	189
Unemployment rate (%)	2001	7.7	6.4	5.6	6.4	12.1
	2011	14.9	10.8	10.7	14.4	15.1
Population with higher education (%)	2001	12.0	19.4	10.3	7.2	3.0
	2011	17.9	32.8	19.3	13.5	6.2
One person household (%)	2001	21.2	23.4	21.7	13.7	22.4
	2011	27.7	29	24.7	17.3	26.6
Average monthly earnings (€)	2004	1045.1	1405.3	1016.8	821.1	716.6
	2011	1249.4	1648.8	1232.7	1049.5	900.7

Sources: Statistics Portugal Censos 2001 and 2011; Strategy and Planning Office of the Ministry of Labour, Solidarity and Social Security

Table 19 — Characterisation of the study areas and psychiatric department

Measurements

Dependent variable

The dependent variable was the number of involuntary psychiatric hospitalisations per patient in one year.

Independent variables

The independent variables included the individual characteristics of the participants, the year of admission, and the psychiatric service.

For each admission, we extracted information on patient sociodemographic and clinical characteristics, such as age, gender, marital status, education, employment status, psychiatric diagnosis, and presence of a suicide attempt in the last 12 months. Age was grouped into four categories (15-29; 30-49; 50-64; ≥65 years). Marital status was categorised into three groups (single; married or cohabitating; divorced, separated or widowed). Education was divided into four categories [none or primary education (≤ 4 years); basic education (5-9 years); secondary education (10-12 years); and higher education (>12 years)]. Employment status was assessed into three categories [workers (including on sick leave) or students; unemployed; retired or other (including homemakers)].

Psychiatric main diagnoses were established according to the criteria of the International Classification of Diseases, 9th revision, the clinical coding criteria used in Portugal throughout the period of time of this study. They were categorised into five groups: mood and anxiety disorders; dementia; substance use disorders; psychosis; and other mental disorders.

The years of evaluation were 2002, 2007, and 2012.

The data were retrieved from the clinical records of the abovementioned hospitals. The clinical records of the patients from Unidade Local de Saúde do Baixo Alentejo EPE were obtained from Centro Hospitalar Psiquiátrico de Lisboa, where they were admitted.

Statistical analysis

Descriptive statistics were performed using frequencies and percentages.

A Poisson generalised linear model (GLM) was employed for modelling the expected number of involuntary hospitalisations as a function of the following covariates: gender, age group,

marital status, education, employment status, suicide attempt, psychiatric diagnosis, year of evaluation and psychiatric service. The amount of missing data was not relevant and missing data were not handled. Overdispersion was not present as the data did not exhibit greater variation than was expected for this model. The statistical test to check for overdispersion in this Poisson GLM provided a p-value equal to 0.7. The goodness-of-fit of the model was assessed using the deviance of 1347.4 on 2248 degrees of freedom which, with a Chi-Square distribution, gives a clear indication that the model fits the data ($p>0.995$).

The R statistical software (44) was used to perform all the statistical analyses.

Results

Descriptive statistics

Table 20 shows the number of involuntary hospitalisations in the study sample. Of the 3871 participants, 16.2% (n=604) had at least one involuntary hospitalisation in the previous year. Of these, 90.6% (n=547) had one involuntary hospitalisation, 7.8% (n=47) had two hospitalisations, 1.2% (n=7) had three hospitalisations, and 0.5% (n=3) had four hospitalisations.

Number of involuntary hospitalisations									
0		1		2		3		4	
n	%	n	%	n	%	n	%	n	%
3127	83.8	547	14.7	47	1.3	7	0.2	3	0.1

Table 20 - Frequency of involuntary hospitalisations in the study sample

Table 21 shows the sociodemographic, clinical, and contextual characteristics of the study sample and the sub-sample with at least one involuntary hospitalisation.

	Full sample (n=3871)		Respondents with ≥1 involuntary hospitalisation (n=604)	
	n	%	n	%
Sociodemographic characteristics				
Gender				
Women	1977	51.1	249	41.2
Men	1894	48.9	355	58.8
Age				
15-29	679	17.5	112	18.5
30-49	1802	46.5	317	52.5
50-64	826	21.3	117	19.4
>=65	565	14.6	58	9.6
Marital status				
Single	1702	45.5	356	61.0
Married/cohabitating	1222	32.6	113	19.3
Divorced/separated/widowed	819	21.9	115	19.7
Education				
None or primary education	773	31.9	84	21.3
Basic education	858	35.4	143	36.2
Secondary education	404	16.7	77	19.5
Higher education	390	16.1	91	23.0
Employment status				
Workers or students	1076	31.3	165	29.4
Unemployed	915	26.6	180	32.0
Retired or others	1445	42.1	217	38.6
Clinical characteristics				
Psychiatric diagnosis				
Mood and anxiety disorders	1603	41.7	154	25.6
Dementia	204	5.3	15	2.5
Substance use disorders	335	8.7	45	7.5

Psychosis	1269	33.0	338	56.1
Other mental disorders	433	11.3	50	8.3
Suicide attempt				
Yes	610	16.4	51	8.6
No	3117	83.6	545	91.4
Contextual characteristics				
Year				
2002	1188	30.7	115	19.0
2007	1309	33.8	226	37.4
2012	1375	35.5	263	43.5
Psychiatric service				
Centro Hospitalar de Lisboa Ocidental EPE	523	13.5	138	22.8
Hospital de Magalhães Lemos EPE	1556	40.2	177	29.3
Centro Hospitalar Psiquiátrico de Lisboa	991	25.6	138	22.8
Hospital Professor Doutor Fernando Fonseca EPE	462	11.9	88	14.6
Unidade Local de Saúde do Baixo Alentejo EPE	340	8.8	63	10.4

Table 21 — Sociodemographic, clinical, and contextual characteristics of the study sample and sub-sample with at least one involuntary hospitalisation

Association between involuntary hospitalisation(s) and sociodemographic, clinical, and contextual variables

The results of the multivariable Poisson regression model are presented in Table 22. We found that the following factors are independently associated with involuntary hospitalisations: gender, marital status, education, psychiatric diagnosis, a previous suicide attempt, year of admission, and psychiatric service.

Holding all other variables constant, men have an increment of 1.31 involuntary hospitalisations when compared to women (95%CI:1.06-1.62, $p<0.05$). Participants who are married or cohabitating have a 26% decrease in the expected number of involuntary hospitalisations when compared to participants who are single (95%CI:0.56-0.99, $p<0.05$). Participants with secondary education and with higher education have 45% and 89% more involuntary hospitalisations than participants with no or primary education, respectively (95%CI:1.05-2.01, $p<0.05$, and 95%CI:1.38-2.60, $p<0.001$). Participants with a diagnosis of psychosis have an increment of 2.02 involuntary hospitalisations when compared to participants with mood and anxiety disorders (95%CI:1.59-2.59, $p<0.001$). Participants with a suicide attempt have a decrease of 74% in the estimated mean number of involuntary hospitalisations when compared to participants with no suicide attempt (95%CI:0.15-0.42, $p<0.001$). Participants admitted in 2007 and in 2012 have a 61% and 73% increase in the expected number of involuntary hospitalisations when compared to participants admitted in 2002, respectively (95%CI:1.21-2.16, $p<0.01$, and 95%CI:1.31-2.32, $p<0.001$). Participants from Hospital de Magalhães Lemos EPE, Centro Hospitalar Psiquiátrico de Lisboa and Unidade Local de Saúde do Baixo Alentejo EPE have a decrease in the expected number of involuntary hospitalisations of 35%, 33% and 33% when compared to participants from Centro Hospitalar de Lisboa Ocidental EPE, respectively (95%CI:0.49-0.86, $p<0.01$, 95%CI:0.49-0.90, $p<0.01$, and 95%CI:0.46-0.96, $p<0.05$).

	Exp ($\hat{\beta}$)	95%CI
Sociodemographic characteristics		
Gender		
Women	Ref.	
Men	1.31	1.06-1.62 *
Age		
15-29	Ref.	
30-49	1.10	0.86-1.42
50-64	0.97	0.69-1.38
>=65	0.89	0.52-1.49
Marital status		
Single	Ref.	
Married/cohabitating	0.74	0.56-0.99 *
Divorced/separated/widowed	0.94	0.70-1.24
Education		
None or primary education	Ref.	
Basic education	1.30	0.98-1.73
Secondary education	1.45	1.05-2.01 *
Higher education	1.89	1.38-2.60 ***
Employment status		
Workers or students	Ref.	
Unemployed	1.08	0.84-1.39
Retired or others	1.11	0.86-1.45
Clinical characteristics		
Psychiatric diagnosis		
Mood and anxiety disorders	Ref.	
Dementia	0.98	0.46-1.92
Substance use disorders	0.94	0.60-1.43
Psychosis	2.02	1.59-2.59 ***
Other mental disorders	0.84	0.55-1.26
Suicide attempt		

No	Ref.	
Yes	0.26	0.15-0.42 ***
Contextual characteristics		
Year		
2002	Ref.	
2007	1.61	1.21- 2.16 **
2012	1.73	1.31-2.32 ***
Psychiatric service		
Centro Hospitalar de Lisboa Ocidental EPE	Ref.	
Hospital de Magalhães Lemos EPE	0.65	0.49-0.86 **
Centro Hospitalar Psiquiátrico de Lisboa	0.67	0.49-0.90 **
Hospital Professor Doutor Fernando Fonseca EPE	0.79	0.54-1.14
Unidade Local de Saúde do Baixo Alentejo EPE	0.67	0.46-0.96 *

* p<0.05; ** p<0.01; *** p<0.001

Table 22 — Multivariable Poisson regression model of the association between the number of involuntary hospitalisations and sociodemographic, clinical, and contextual characteristics

Discussion

This study evaluated clinical data from all acute inpatients from five psychiatric departments serving different catchment areas in Portugal in the years of 2002, 2007 and 2012, and identified several sociodemographic, clinical, and contextual factors associated with involuntary psychiatric hospitalisations in Portugal.

Factors that were associated with an increment in involuntary hospitalisations were male gender, secondary or higher education, a psychiatric diagnosis of psychosis, and hospital admission in 2007 and 2012. Factors that were associated with a reduction in involuntary hospitalisations were being married or cohabitating, having experienced a suicide attempt, and belonging to the catchment area of three of the psychiatric services evaluated (the psychiatric hospitals in Lisboa and Porto, and the general hospital in Alentejo).

This research found that people with a psychotic disorder are at higher risk for involuntary hospitalisation, one of the most consistent findings from studies around the world (31, 32, 45–62). It is reassuring that people with the most severe and disabling mental health conditions are also those who most frequently use mental health legislation (4). Since no definition of diagnosis is provided by legal frameworks, it is important to understand what specific pathways and mechanisms might increase the risk for involuntary admission in someone with psychosis. One study found that hostility and suspiciousness were significant compulsory admission determinants, and that diagnosis no longer had any independent influence on the risk of involuntary hospitalisation, after controlling for these specific symptoms (48). A high level of suspiciousness and uncooperativeness might go hand in hand with reduced coping-strategies and insight, and lead to poor adherence to medication and impaired capacity to establish a therapeutic alliance (51, 60, 62), which explains the higher risk of involuntary hospitalisation in psychosis. Another study concluded that aggression and psychotic symptoms increased the odds of involuntary hospitalisations (63). Increased stress-level and aggressive behaviors might be perceived as an imminent danger to self or others, reflecting the still widespread assumption that people with severe mental disorders are unpredictable and dangerous. This might be a central factor in the judgment of mental health professionals regarding involuntary admission (38). It is also likely that the shortage of community services for early recognition and assertive outreach is particularly serious in cases

of psychosis, leading to a higher rate of acute psychiatric crises and emergency admittances among this group (55).

Regarding sociodemographic factors, male gender was significantly associated with a higher risk of involuntary hospitalisations. This finding is congruent with several previous studies (31, 32, 45–47, 52, 53, 55, 57, 58, 60, 64), while other studies have shown a higher risk in female gender (51, 65, 66). Possible explanations might be related to societal attitudes and treatment culture that lead to different help-seeking behavior in males and females. Alternatively, mentally ill men may be perceived as more violent, suggesting that perceptions of dangerousness and of overtly dangerous behavior are important contributing factors to involuntary hospitalisations (31, 32, 53, 60). It is important to know that gender independently influences the risk of involuntary hospitalisation. On the one hand, this provides evidence for the possible need to plan mental health services with differing pathways to care for women and men with severe mental disorders. On the other hand, this draws attention to issues relating to equality and to human rights that may be present in mental health legislation, in mental health services, or in potentially discriminatory practices by third parties, as for instance the police (64).

Mixed results have been found regarding the association between educational level and involuntary hospitalisation. The finding that a higher educational level is a risk factor for involuntary hospitalisations is in line with some studies (51, 62) but inconsistent with others (53, 58, 67). Evidence is scarce and difficult to interpret. However, it has been hypothesised that schooling may be associated with greater awareness of individual rights, leading the patient to disagree with inpatient treatment (51).

Regarding marital status, most previous studies have shown that being married is associated with a reduced risk (46, 68) and that being unmarried is associated with a higher risk of involuntary hospitalisations (47, 51, 57, 61, 67). However, one study showed that married status is associated with an increased risk of involuntary treatment (62). Overall, the finding of a greater likelihood of involuntary care among unmarried people may reflect the associations between poorer social capability, loneliness, scant social support, and severe mental health difficulties (4, 51, 61). It might also reflect the role that friends and family may have in encouraging and facilitating help-seeking by voluntary means (4).

In line with some studies (47, 48, 56, 62) but contradicting others (54), we found that a history of suicidal attempt within the previous 12 months was a negative predictor of involuntary treatment. A possible explanation could be that after non-fatal suicidal attempt the individual may receive more social support from family and friends that, in turn, may increase his or her compliance with treatment and hospitalisation (47). Moreover, these patients could gain better insight into the severity of their clinical condition and develop a therapeutic collaboration, learning to ask for help and voluntary hospitalisation when in need (48). Alternatively, individuals with severe physical damage resulting from attempted suicide are voluntarily hospitalised for treatment in general hospitals with consequent referral to psychiatric departments (47).

Previous research suggests several system-related factors to be associated with involuntary hospitalisations: previous utilization of mental health services (53, 69, 70), availability of inpatient beds (34, 52, 71), availability of alternative, less restrictive forms of care, such as temporary housing or residential crisis stabilisation (72– 74), adequacy of community services (4), availability of home visits (75, 76), lower levels of service integration (62, 77), referral procedures such as contact with police, referral by physicians who did not know the patient or the professional that requires a compulsory admission (63, 65, 67), and longer waiting times for obtaining appropriate mental health care (62, 75). This study found variation across psychiatric services, suggesting that service organisation plays a role in predicting involuntary hospitalisations. However, the analysis did not include service-level variables and it is not possible to ascertain which aspects of mental health care organisation are specifically involved.

Another relevant finding was the increase in involuntary hospitalisations in 2007 and 2012 in comparison to 2002. This may correspond to a time trend, following the increasing rates over time in some European countries (4). The increment in 2012 may also reflect an association between the Great Recession and involuntary hospitalisations in Portugal. During periods of economic recession, it is plausible that several factors will lower the threshold and shape the decision for an involuntary admission, such as family stress, dearth of social associations, social stigma associated with mental health problems, reduced tolerance for persons with mental illness, declining social capital and increased desire for security in society (60, 78–80). These

factors involve a complex interaction between clinical judgement, patient psychopathology, social variables, fulfilment of legal requirements, and local availability of resources.

The results of this study should be interpreted in the light of several limitations. First, the analysis was based on a retrospective observational study of clinical records and we did not have access to information on several factors that might be helpful in explaining the likelihood of involuntary hospitalisation, such as symptom severity, level of psychosocial functioning, level of insight, perceived social support or poor adherence to outpatient treatment. Second, the use of routinely collected clinical data may lead to data quality issues, such as the risk of misclassification or of errors in the data registration process. Third, our data do not have repeated measures in each year but may have repeated measures over the three years. For data collection, we obtained the list of hospitalisations for each year and accessed the clinical files for each patient. In case a patient had more than one hospitalisation in that year, we only collected information regarding the last hospitalisation, indicating the number of previous involuntary hospitalisations. However, during data analysis, it was not possible to identify the patients with hospitalisations in the three years, due to data protection. Fourth, the dataset did not include system or area-related variables that might describe the organisational, environmental or situational factors influencing involuntary hospitalisation. Evidence for an association between availability of inpatient beds and involuntary hospitalisation is sparse and inconclusive (4). Mixed results have been found regarding the adequacy of community services and the rate of involuntary hospitalisation. Reduced rates of involuntary care were found to be associated with more home visits (76), with the availability of home visits after 10 p.m. (75), and with the availability of alternative less restrictive forms of care (72, 73). However, community services which were rated more highly by service users were also associated with greater numbers of involuntary admissions (33). In this study, it was not possible to conduct a retrospective analysis of the different typologies of service organisation that could help to clarify the impact of factors such as referral procedures, use of crisis intervention practices, total number of psychiatric beds, availability of adequate housing, social care, and other support services. Regarding area-level variables, evidence suggests that high rates of involuntary hospitalisations are significantly associated with higher area-level deprivation, rates of unemployment, and population density (4). On a population level, the areas where

the hospitals are located are very diverse when it comes to average monthly earnings, unemployment rate and population density (Table19). These differences may impact involuntary hospitalisations. Fifth, as our objective was to conduct a descriptive study of the factors that influence the number of hospitalisations in general, the authors chose not to study whether or not there was variability between and within hospitals. This may be a subject of further research. Furthermore, whilst stratification of data by year may have allowed for an examination of variation in the number of hospitalisations by year, our objective was to investigate the risk of involuntary hospitalisation as compared with the baseline data of 2002 and not to compare the risk factors for involuntary hospitalisation in each year. Sixth, patients from Unidade Local de Saúde do Baixo Alentejo EPE were admitted to Centro Hospitalar Psiquiátrico de Lisboa, which makes interpretation of results more complex. Finally, the findings from this study may allow limited comparisons given the marked differences between mental health systems across different countries.

Despite these limitations, this study provided a detailed analysis of all psychiatric admissions under the Mental Health Act over the course of three different years in several psychiatric departments covering catchment areas with distinct geographical and socioeconomic characteristics. This study did not restrict potential risk factors to patient characteristics alone. A future more in-depth analysis of service and area aspects is needed to lead to better predictions and to provide data for services and policies improvement.

Conclusions

It is increasingly recognised and prioritised that we need a new approach to mental health care that is based on human rights and oriented towards recovery (81). Reducing the use of compulsory care should be a policy priority. More evidence is needed on how to reduce involuntary hospitalisations in mental health care, while still preserving the right of people with mental health disorders to receive effective treatments when they are less able to express their own will and preferences (6). Some interventions have shown effectiveness in reducing the risk of compulsory admissions in adults with severe mental illness, when used in the context of existing mental health systems with a community-based organisation of mental healthcare (6). One such intervention is shared decision-making, for instance advance

statements and joint crisis plans with indicators for relapse and future treatment preferences. Another effective intervention is integrated care, such as a 24 h crisis resolution team, or an assertive community treatment, or self-management interventions with a relapse prevention element, or psycho-education and monitoring programmes (6, 82–89). Ensuring that these interventions are offered to high-risk patients could significantly reduce the risk of compulsory admissions.

Further research should focus on a better understanding of the risk factors and clinical decision processes that lead to an involuntary hospitalisation and its consequences on treatment outcomes. Another focal point should be the development, implementation and evaluation of interventions which prove effective in reducing involuntary hospitalisation. This knowledge is essential to inform the development and implementation of targeted strategies to reduce the use of involuntary hospitalisation, to ensure equitable access to psychiatric treatment and to reduce health-care inequalities.

List of abbreviations

UN: United Nations; CRPD: Convention on the Rights of Persons with Disabilities; GLM: generalized linear model; 95% CI: 95% confidence interval

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Authors' contributions

MS conceptualised the study design, contributed to data analysis and interpretation, and drafted the manuscript. AA was a major contributor in conceptualising the study design, data analysis and interpretation, and critically reviewed the manuscript. SAL and AL contributed to

data analysis and interpretation. BS, JMCA, and GC reviewed and approved the final manuscript. The author(s) read and approved the final manuscript.

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Availability of data and materials

The datasets generated and analysed during the current study are not publicly available, and the authors are not authorized to share the data.

Declarations

Ethics approval and consent to participate

This study has been approved by the Ethics Committees of Centro Hospitalar Lisboa Ocidental, EPE, Hospital de Magalhães de Lemos, EPE, Centro Hospitalar Psiquiátrico de Lisboa, Hospital Professor Doutor Fernando da Fonseca, EPE, and Unidade Local de Saúde do Baixo Alentejo, EPE and has been performed in accordance with the ethical standards laid down in the 1964 Declaration of Helsinki and its later amendments.

Consent for publication

Not applicable

Competing interests

The authors declare that they have no competing interests.

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4. Discussion

4.1. Summary of main findings

The aim of this doctoral thesis is to contribute to a better understanding of the use of mental health care in Portugal. The findings obtained in the five scientific papers described patterns of use, reasons for nontreatment, and the groups of the population most vulnerable to severe patterns of acute inpatient use, particularly in the context of an economic crisis.

Before discussing the results, a brief summary of the main findings of the investigation will be made, framing them according to the established objectives.

This research was conducted during a serious economic crisis and started with the review of the current state of the art on the association between periods of economic crisis and the use of mental health care, and on the description of the groups of the population most susceptible to increased treatment gap during these periods. To my knowledge, this was the first systematic review to specifically study the impact of the economic crisis on the utilisation of mental health care following PRISMA guidelines.

The findings of the systematic literature review (**original research article nº 1**) are presented in table 23.

- Periods of economic crisis might be linked to an increase in seeking general help for mental health problems, with conflicting results regarding the changes in the use of specialised psychiatric care.
- Different trends were found between the Nordic countries and other European countries in relation to the use of mental health care due to suicide behaviour.
- Economic crises might be associated with a higher use of psychotropic drugs and an increase in hospital admissions for mental disorders.
- The groups of people most susceptible to the effects of crises are not consistently those that most access mental health care, highlighting the risk of an increase in the treatment gap and a widening of social inequalities in mental health during times of economic crisis.

Table 23 — Summary of the main findings on the association between periods of economic crisis and the use of mental health care

Despite the importance of this issue, scarce research and literature was found. In addition, the use of mental health care and the treatment gap are central issues in the Portuguese context, but still poorly known. These findings and reflections supported the development of the objectives and methodology of the following research phase.

The second research phase aimed to examine the use, patterns and barriers to mental health treatment among adults with mental disorders in Portugal, using a nationally representative sample, and to evaluate the impact of the Great Recession on the patterns of care, specifically on the use of psychotropic drugs.

In this research (**original research article nº 2**), we looked for the characteristics associated with having received treatment or with barriers to treatment in participants with any 12-month mental disorder, adjusting for individuals' sociodemographic characteristics (age and gender), and comorbidity with any physical disorder. Applying Andersen's model (109), we assessed:

1. predisposing characteristics (marital status and educational level)
2. enabling characteristics (income and employment status)

3. need characteristics [type (12-month mood, anxiety, and substance use disorder) and severity of disorder (disability)]

The findings of the original research article n° 2 are presented in table 24.

- The majority of participants with a mental disorder did not receive treatment.
- The participants who most accessed mental health care were those with mood disorders and disability, and service utilisation was significantly lower among those never married and with basic/secondary education.
- Attitudinal barriers were the most commonly reported barrier to treatment, followed by low perceived need and structural barriers.
- Attitudinal barriers were more likely among participants with none/primary and basic/secondary education, and less likely among those with substance use disorders.
- Low perceived need was higher among single people, and lower among those with anxiety and mood disorders.
- Structural barriers were more likely among unemployed participants.

Table 24 — Association between having received treatment or barriers to treatment and sociodemographic and clinical factors

The second study of this phase (**original research article n° 3**) aimed to evaluate the impact of the Great Recession on the patterns of care, specifically on the use of psychotropic drugs. The findings of the original research article n° 3 are presented in table 25.

- A significant increase in the consumption of psychotropic drugs was found from 2008/09 to 2015/16, particularly in hypnotics/sedatives.
- Women and older individuals presented higher odds of consuming any psychotropic drugs, after adjusting for year of assessment and education.
- However, when evaluating the interaction effect of the year with gender and age, men and younger individuals reported higher odds of consuming any psychotropic drugs in 2015/16, when compared to 2008/09, suggesting that the economic crisis had a disproportionate impact on men and younger individuals.

Table 25 — Estimates of the use of psychotropic drugs in 2008/09 and in 2015/16

The third phase of this research (**original research article n° 4 and n° 5**) aimed to identify individual sociodemographic and clinical factors, and contextual factors that influence patterns of use of acute psychiatric inpatient services. In this research, length of stay, readmission, and involuntary hospitalisation were the chosen indicators of hospitalisation. The findings of the original research article n° 4 and n° 5 are presented in table 26.

- Older age, a diagnosis of psychosis, and compulsory admission were **associated with longer LOS**.
- Being married, having a secondary education, a diagnosis of substance use disorder and "other mental disorders", a suicide attempt, being admitted in 2012, and belonging to the catchment area of two of the psychiatric services evaluated (Hospital de Magalhães Lemos, EPE and Centro Hospitalar Psiquiátrico de Lisboa) were **associated with a shorter LOS**.
- Retired (or other), psychotic, and patients with a compulsory admission **presented higher odds of having more than one admission within a year**. The same was found for all patients belonging to any psychiatric service in comparison with Centro Hospitalar de Lisboa Ocidental, EPE.
- Older age and having a secondary or higher education were **associated with a lower number of hospital admissions**.
- Male gender, having secondary and higher education, a psychiatric diagnosis of psychosis, and being admitted in 2007 and in 2012 were **associated with an increment of involuntary hospitalisations.**
- Being married/cohabitating, having experienced a suicide attempt, and belonging to the catchment area of three of the psychiatric services evaluated (Hospital de Magalhães Lemos, Centro Hospitalar Psiquiátrico de Lisboa, and Unidade Local de Saúde do Baixo Alentejo) were **associated with a decrease in involuntary hospitalisations**.

Table 26 — Association between longer LOS (≥17 days), readmission (>1) and number of involuntary hospitalisations and sociodemographic, clinical, and contextual characteristics

4.2. Discussion of main findings

The results obtained in this doctoral thesis contribute to reduce some gaps in the knowledge about the use of mental health care in the national context and reinforce the results of previous international research.

The first research phase aimed to summarise the empirical evidence on the association between periods of economic crisis and the use of mental health care, and to characterise the most vulnerable groups of the population to increased treatment gap. This systematic literature review (***original research article n° 1***) confirmed the hypothesis that the impact of economic crises on the use of mental health care would be mixed and found an increase in seeking general help for mental health problems, with conflicting results regarding the changes in the use of specialised psychiatric care. This might be explained by the increased mental health morbidity and demand for mental care, on the one hand, with expansion of the barriers to access to mental health care due to changes in the availability (e.g., cuts in human resources) and affordability (e.g., out-of-pocket payments) of services, on the other hand (213, 215, 216). As a result, more accessible and affordable general health care, such as the contact with a general practitioner, the visits to the medical emergency room or the use of psychotropic drugs, might be the preferred pathway to care, with the subsequent increase in unmet need for specialised care. This pattern may have consequences for individuals and society, as shown by the increase in hospital admissions for mental disorders, and may widen the treatment gap, particularly among the most vulnerable groups. These results complement the available evidence (191, 249, 250).

These results drew attention to the need to better understand the barriers and the impact of the crisis on the Portuguese context, that were the objectives of the second research phase.

The magnitude of the unmet needs in mental health across the world is well known (49, 93, 97, 98, 102), and the WHO has adopted a Mental Health Action Plan with the highest level of political commitment from all 194 ministers of health in the World Health Assembly to address this major public health challenge (251). The second study (***original research article n° 2***) found that the majority of participants with a mental disorder in Portugal did not receive treatment, adding information about the situation in Portugal to the existing literature.

This second study also evaluated what are the main barriers to mental health care, and which groups, defined by sociodemographic and clinical factors, are most vulnerable to nontreatment and to each type of barrier. Attitudinal barriers were the most commonly reported barrier to treatment, followed by low perceived need and structural barriers. These findings are consistent with previous studies (130, 252, 253), but in contrast to others that have found low perceived need for treatment to be the most prevalent impediment (254–256).

The results showed the importance of the need for care as the trigger for health service use, consistent with previous research pointing to need factors as the strongest determinants of health service utilisation for mental disorders (257). Patients who are more in need, expressed by disability, received more treatment, consistent with the finding in other countries of a meaningful association between severity and probability of treatment (49, 257, 258). However, the study found that a significant percentage of participants with substantial disability reported no service use.

The type of disorder was also associated with having received treatment and with specific barriers to treatment. The presence of a mood disorder was the most important determinant of use of health services, consistent with previous research (93, 259). Attitudinal barriers were significantly less reported by participants with any 12-month substance use disorder, in contrast with the findings of previous studies on the negative attitudes toward mental health service use by those with substance use disorders (129). This may suggest a decreased stigma in relation to these disorders in our country and a lower tendency for patients and providers to view these problems as social or criminal rather than medical. Having an anxiety or mood disorder was associated with perceived need for treatment, which may reflect its associated disability (255). The rigorous identification of non-affective psychosis was not possible with the instrument used in the WMH surveys, a limitation that prevents us from drawing conclusions about the service use and barriers found by patients with severe mental disorders.

The results confirmed the importance of the predisposing characteristics in mental health help-seeking behaviour, which are also the most studied (257). A higher education level was found to be a determinant of the use of mental health care, in line with other evidence (257, 259–261), as well as associated with less attitudinal barriers (258), highlighting the role of health literacy and ability to navigate institutions in access to care. Being single was associated

with nontreatment and with low perceived need. The finding of a lower service utilisation among those never married contradicts previous research (95, 253, 257), and is in line with other (129). A possible explanation may include the reluctance of some individuals to access services when taking that decision by themselves.

Regarding enabling characteristics, structural barriers are likely to hinder appropriate access of unemployed participants to mental health care, despite universal healthcare access. In this research income was not associated with the use of health services, in line with other research (257).

The impact of the Great Recession on the patterns of care, specifically on the use of psychotropic drugs, was assessed in the third study (***original research article n° 3***). Previous international studies had found an increase in the use of psychotropic drugs during periods of economic crisis, including psychotropic medications to treat depressive and anxiety disorders (262–265). It was hypothesised that the Great Recession might be associated with a higher use of psychotropic drugs in Portugal, a country where the high rates of consumption of psychotropic drugs have been recognised as a public health challenge (266).

The use of psychotropic drugs by the same individuals was compared before and after the economic crisis, accounting for gender and age differences, and a significant increase in their use was found. In Portugal, in the past two decades there has been a continuous increase in prescription and dispensation of psychotropic drugs in the National Health Service (266, 267), and the findings do not allow us to state that this pattern has worsened or accelerated during the Great Recession. However, the results were based on self-reported use, not limited to the National Health Service, and showed a particularly significant increase in hypnotics/sedatives, while the previous continuous increase was more pronounced among antidepressants and antipsychotics (266, 267). This increased use of psychotropic drugs may reflect the deterioration of the population's mental health, particularly common mental disorders, higher perceived need of care, a greater accessibility to medicines, longer use, or approval of new therapeutic indications (97, 98, 191, 205, 266, 268). The increase found in the use of hypnotics/sedatives constitutes a public health concern given the already high consumption levels in the country, their limited therapeutic value, and the potential problems of dependence and tolerance (266, 269). The results also showed that women and older

individuals presented higher odds of consuming any psychotropic drugs, consistent with other research (232, 270). Possible explanations for gender differences in the use of psychotropic drugs might be differences in the prevalence of mental disorders, different healthcare-seeking behaviour, or prescription preferences by mental health professionals and services (232). In this research, however, when evaluating the interaction effect of the year with gender and age, men and younger individuals reported higher odds of consuming any psychotropic drugs in 2015/16, when compared to 2008/09, men reported higher odds of using hypnotics/sedatives in 2015/16, when compared to 2008/09, and younger individuals reported higher odds of consuming antidepressants, and hypnotics/ sedatives in 2015/16, when compared to 2008/09. These findings suggest that the economic crisis had a disproportionate impact on men and younger individuals, also in line with previous literature (212, 214, 271). The precise mechanisms involved in these associations still need to be accurately elucidated. Working age men might be a group particularly susceptible to the effects of economic crises by experiencing individual-level economic shocks (e.g., job and income loss) more often than women, with the consequent deterioration of mental health (212, 214, 262, 265, 271). Factors such as shifts in labour markets (212), the disproportionate loss of jobs (212, 262, 265), poor job satisfaction, an unsatisfactory atmosphere at work (272, 273), and a more pronounced pressure to assume traditional role of breadwinners and for relative socioeconomic success (274) offer some explanation on why unemployment and uncertainty about the future may have a stronger impact on men's mental health during recessions. Previous research has shown that, when confronted with high job strain, men used anxiolytics significantly more often than women in similar conditions (232). Seeking help for emotional and mental problems also differs by gender, and, consequently, gender differences in treatment gap and prescription appropriateness may widen during periods of economic recession (257, 261, 275–278). Younger workers are additionally exposed to more precarious employment and unemployment - youth unemployment rates of almost 40% occurred during the Great Recession in Portugal (279, 280). Furthermore, economically inactive groups such as students may have had a deterioration of their living conditions, and young individuals may adopt worse coping strategies to deal with adverse events, such as the use of medication (217, 273).

Following these studies on the general Portuguese population, the focus of the third and last research phase was on users of acute psychiatric inpatient services from the catchment areas of five psychiatric departments in the Metropolitan Areas of Lisboa and Porto and the region of Baixo Alentejo. The third phase of research (***original research article n° 4 and n° 5***) focused on identifying the individual and contextual factors that influence patterns of use of acute psychiatric inpatient services, specifically length of hospital stay, readmission, and involuntary hospitalisation, before (2002 and 2007) and during the period of economic crisis (2012).

These results identified several individual variables that independently predict more severe patterns of hospital admission. A psychiatric diagnosis of psychosis was found to be associated with longer LOS, readmission and involuntary hospitalisation, and compulsory admission was found to be associated with longer LOS and readmission. These findings point to the impact of higher clinical severity and chronicity on more severe patterns of hospital admission and are in line with prior research (139, 140, 143, 146–148, 159, 162, 281–310). Being retired, a marker of social dysfunction and chronicity, was associated with a higher likelihood of readmission, as found in previous research (153). Gender was found to independently influence the risk of involuntary hospitalisation, with male gender associated with a higher risk, as found in most previous research (161, 162, 289–291, 296, 297, 299, 301, 302, 304, 311). This finding may reflect gender differences in societal attitudes and treatment culture towards help-seeking behaviour or in perception of dangerousness (161, 162, 297, 304). However, gender was not significantly associated with either LOS or number of admissions.

Several factors were found to protect from more severe patterns of hospital admission. Being married and having experienced a suicide attempt were associated with shorter LOS and less involuntary hospitalisations. The first association may reflect the importance of family network and social support in encouraging help-seeking behaviour and maintaining continuous care, or it may be a proxy for less severe disorder for the ability to establish stronger interpersonal relationships. The same association was found in previous research (146–148, 290, 291, 295, 301, 305, 312, 313). The second association, consistent with most previous research (282, 285, 291, 292, 300, 306), may be explained by an illness course characterised by brief suicidal crises requiring a shorter duration of hospitalisation, more social support from family and

friends, or the development of a therapeutic collaboration and the ability to ask for help when in need. The association between substance use disorder and shorter LOS may reflect that less time is required for stabilization of psychotic symptoms in the context of substance misuse (146) or acute symptoms in a substance use disorder (140), that patients are more likely to leave against medical advice following inpatient detoxification (146, 286), or that countertransference issues among clinicians may influence discharge decisions regarding these patients (140).

The findings were mixed for education and age. Secondary education was associated with shorter LOS, and secondary or higher education were associated with lower number of admission and more involuntary hospitalisations, consistent with the available mixed evidence (139, 146, 148, 295, 297, 302, 306, 313, 314). Older age was associated with longer LOS and lower number of admissions, in accordance with some previous studies (146, 147, 149, 153, 281, 286, 287, 307, 309, 310), but contradicting others (139, 288, 308).

This research found variation in LOS, readmission, and involuntary hospitalisation across psychiatric services. Some of this variation is probably due to patients' characteristics that have not been evaluated and controlled for, such as illness severity, but it also may reflect health care system-level characteristics, such as case-mix differences, variability in human and structural resources (140, 309), in treatment philosophies and practice patterns (139), and in efficiency of care provision (146). However, service-level variables were not included in the analysis and the aspects that could be specifically involved have not been explored. Previous research suggests several system-related factors to be associated with these three indicators. Associations were found between a shorter distance from the patient's place of residence to the hospital (146), higher hospital patient volume (310) and services with more psychologists, social workers, and psychiatric nurses in their staff (309) and a shorter LOS, while an increased LOS was found to be associated with psychiatric hospitals (*versus* general acute care facilities (146, 315), larger hospital size (146, 147), lower caseload volume (316), higher density of psychiatric beds (310), higher outpatient contact rate (309), higher levels of aftercare in structured settings (143), or living in an area lacking community services (314). A study conducted in Portugal concluded that an integrated care programme, based on the clinical case management model, was associated with lower length of hospital stay and number of

hospital admissions (317). More active and assertive treatment in the community post-discharge was associated with a decreased risk of readmission (314). Reduced rates of involuntary hospitalisation have been associated with previous outpatient or community service utilisation (297, 306, 318, 319), availability of home visits and alternative forms of care (320–322), and mental health service integration (323), while higher rates of involuntary hospitalisation have been associated with lack of alternatives to hospitalisation (322, 324), adequacy of community services (325), and the referral or admission procedures (156, 306, 313, 326), with mixed findings regarding the availability of inpatient beds (296, 330, 327, 328).

This study found that the year of 2012 was associated with both shorter LOS and more involuntary hospitalisations. These findings may reflect the impact of the Great Recession on the use of mental health care in Portugal. The increased demand for mental health care may have led to higher bed occupancy rates and to increased pressure toward a shorter stay. Factors that occur during economic crises, such as family stress, dearth of social associations, social stigma associated with mental health problems, reduced tolerance for persons with mental illness, declining social capital and increased desire for security in society (304, 329–331), may have lowered the threshold for an involuntary admission, decision which involves a complex interaction between clinical judgement, the psychopathology of patients, social variables, fulfilment of legal requirements, and local availability of resources.

The results of this study indicate limited access to mental health care and that mental disorders remain untreated for many individuals in Portugal, making it a significant public health issue. The low use of mental health care is the consequence of a range of supply and demand barriers that should be addressed to promote an equitable and timely access to mental health care (1). This research found that need factors (type and severity of disorder) and attitudinal barriers are central to explaining health service utilisation, which suggests that many of those who do not access care from formal health services fail to do so because of lack of demand for services (257). This limited demand can be understood as a lack of education or awareness about mental health issues, indicating the importance of information and communication campaigns (257). This also means that increasing the supply of mental health services may not alone make a substantial impact on the treatment gap for mental disorders,

as supported by the finding that enabling factors do not appear to be a major determinant of treatment-seeking. These results are in line with prior research. Data from the WMHS Initiative found that differences in treatment rates by socio-economic status were predominantly accounted for by education rather than income (332), and that attitudinal barriers were reported much more often than structural barriers, with the exception of severe cases (128). Data at the ecological level found no association between seeking care with health spending or out-of-pocket costs (333). However, evidence also suggests that the effect of financial barriers on the use of mental health care is more pronounced than in other areas of health care (92). Worldwide out-of-pocket expenditures for mental health services remain significant (50, 334). In 27% of WHO Member States mental health care is not included in national health insurance or reimbursement schemes and in 19% of these countries mental disorders are explicitly listed as excluded conditions from the national health insurance or reimbursement schemes (50). Even in countries with integration of mental health care into publicly funded general medical care, access to care remains a challenge, in part because of rationing and long waiting lists, leading to gradual introduction of private health care options (92). Additionally, this research was conducted before the 2008 economic recession and these results do not account the impact of the economic crisis, which may have contributed to increased difficulties accessing health services, particularly among those social/economically deprived (235).

The Lancet Commission on Global Mental Health and Sustainable Development (1) considers ***four innovative strategies to address the barriers to mental health care***: an improved access to psychosocial interventions, the balanced care approach to delivering mental health services, the use of digital technologies, and interventions to increase the demand for care.

The primary goal of psychosocial interventions, including talking therapies and social interventions, is to facilitate the acquisition of skills to address the risk factors, mediators, or consequences of mental health conditions and to enable social circumstances for the patient's recovery (1). Psychological interventions are supported by strong evidence of their effectiveness across a wide spectrum of conditions, and for a range of goals (335), side-effects are relatively rare, and seem to have a greater enduring effect than pharmacological therapies (336). Evidence is also growing for the effectiveness of social interventions, including specific,

manualised programmes, such as individual placement and support (supported employment) to help people with severe mental illness find and keep jobs (337).

The balanced care model (previously described in section "2.2. Organisation of mental health services") is characterised by a balance between different service delivery platforms, customised to each resource setting (338, 339). This balanced care model emphasises the importance of evidence-based community and intersectoral interventions (provided outside the health-care sector), such as employment opportunities, child protection services, measures to improve community-level understanding of mental disorders and the available services (340), long-term social care, and suicide prevention measures.

The rapid growth in e-health and self-help resources and internet access offers new opportunities to reach an increased number of people living with mental disorders (1, 341), and became fundamental during the Covid-19 pandemic. Digital technologies for mental health 1) can help educate the public and disseminate information about common mental disorders, and also enable people with mental health conditions to feel less alone and find support from others with shared experiences (342); 2) can facilitate screening and diagnosis of mental disorders (342); 3) can support the treatment and care of people with mental disorders, through mobile and online programmes for illness self-management and relapse prevention, SMS text messaging for promoting medication and treatment adherence, smartphone applications for tracking and monitoring symptoms (342), and telepsychiatry applications; 4) can support effective training and supervision of non-specialist health workers through digital learning and supervision platforms, by providing crucial decision support tools, or access to specialist consultation and support; 5) can also support system-level efforts to improve mental health (343). Potential risks associated with the use of digital technologies might be the loss of key human ingredients and, possibly, lower effectiveness of mental health care; potential risks for mental health (such as cyberbullying and internet gaming disorders); important ethical risks related to privacy, and potential for intrusion and coercion; and further discrimination against people with mental disorders through tracking and monitoring (e.g., for access to health and life insurance), and widening inequalities in mental health care (1).

This research provides some information about the groups at risk of not accessing mental health care, specifically those with a lower education level, single and unemployed, and these

populations could be addressed in individually tailored interventions to increase help-seeking. ***Evidence is emerging on how to increase demand for care***.

Public awareness and education initiatives have been conducted to increase mental health literacy – that is, knowledge and beliefs about mental disorders, and available treatment options – and to fight stigma – a process that transforms an individual "from a whole and usual person to a tainted, discounted one" (92, 344). The aims of these public initiatives are to help people to recognise problems or illnesses, improve their knowledge about the causes of disorders and their treatment, dispel common myths associated with those disorders and their treatment, and inform them about where to go to get help (184, 341). While there is evidence for small to moderate positive impacts of both mass media campaigns and interventions for target groups in improving help-seeking attitudes and reducing prejudicial attitudes, evidence as to whether or not those changes have a lasting impact or translate into improvement in discriminatory behaviour and practices is more limited (92, 345–349, 350). Interpersonal contact with people with mental disorders (348, 350), engagement of people with mental disorders in all aspects of mental health care (351, 352), and use of community interventions that incorporate contextual understandings and narratives of mental health and disorder may increase the detection of mental disorders, demand, and help seeking for mental health care (1, 353–355), and reduce stigma (349).

The results of this study also indicate that, despite universal health coverage, ***affordable and accessible health care is particularly needed*** for specific sociodemographic groups, particularly those unemployed. A more rational use of resources and a better organisation of services, such as clear definition of responsibilities at each level of care and an effective referral system are also important (80, 341), as well as training to improve the screening and treatment skills of health care providers, particularly at primary care level (261).

The findings of this thesis also enabled the identification of factors influencing more severe hospitalisation patterns. ***Some interventions have shown effectiveness in reducing the risk of longer LOS, readmission and compulsory admission***.

Careful discharge planning, with a thorough assessment of patients' needs, post-discharge strategies that enhance continuity of care, such as community teams with case management (143, 285, 317), strategies that reinforce treatment compliance, and improve support for and

collaboration with families and social services (140, 314), and the availability of alternatives to admission, including a day hospital programme, day care centres, easy access to outpatient clinics, outreach teams, and supervised accommodation, have been associated with better outcomes regarding the duration and the number of hospitalisations.

Interventions such as shared decision-making (e.g., advance statements and joint crisis plans with indicators for relapse and future treatment preferences) and integrated care (e.g., 24h crisis resolution team; assertive community treatment; self-management interventions with a relapse prevention element, psycho-education and monitoring programmes) (158, 356–363), when used in the context of existing mental health systems with a community-based organisation of mental healthcare (158), have been associated with reduced risk compulsory admission.

The results of this thesis highlight that during economic crises it is crucial to maintain universal, accessible and affordable health care of good quality to avoid increasing the treatment gap, particularly among vulnerable groups.

Available evidence shows that ***the mental health risks that arise during and after an economic recession can be mitigated through a holistic approach across several sectors*** (213, 364–366), and that it is important to consider the following actions:

- Ensure strong formal social protection systems, programmes, and welfare benefits to strengthen safety nets and to buffer and minimise increasing inequalities in mental health (213).
- Implement debt relief and financial counselling programmes to decrease economic deprivation and financial stress (367).
- Invest in active labour market programmes that keep and reintegrate workers in jobs (366). These programmes aim at improving the prospects of finding gainful employment and include public employment services, labour market training, special programmes for young people in transition from school to work, and programmes to provide or promote employment for people with disabilities (211, 213, 366, 368).
- Promote social support systems, family support programmes, and protection for housing instability (191, 213).

- Strengthen social capital, since social networks and groups can constitute a safety net that may help provide innovative responses to socioeconomic thought times (369). Measures to promote social integration and community belonging may provide support and action at the local level. The municipalities and other local entities are important partners in mental health strategies aimed at providing social support and strengthening the community networks in which people live. Collaborative programmes and training programmes should be promoted to strengthen their capacity to manage the mental health problems of vulnerable populations (211).
- Regarding the mental health sector, models of care that are closer to the population, that facilitate the early identification of mental health problems and the implementation of integrated and psychosocial interventions, and that have a focus on prevention of mental health problems and disorders are particularly useful (211). During the COVID-19 pandemic, the key principles of accessible, flexible services and close therapeutic relationships were made even more difficult due to infection-control measures and the "keep a distance" principle (370, 371).

Although the COVID-19 crisis is, in the first instance, a physical health crisis (372), whose immediate risk factors for mental health are the health impacts of the virus (372), unpredictability and uncertainty, social isolation, inactivity, increased access to food, alcohol, and online gambling, and decreased family and social support, the downturn in the economy will probably disproportionately affect socially disadvantaged patients, as in previous economic crises (370, 371). The most insidious effects of the outbreak on mental health are not evident yet, and it is expected that the need for mental health services has never been greater (370).

4.3. Limitations and strengths

This doctoral research has several limitations that must be considered when interpreting the results, in addition to those already mentioned in each original research article.

First, this research used data from three sources, the World Mental Health Survey Portugal, the National Mental Health Survey Follow-up, and the SMAILE project, with different study samples and representativeness. The first two studies allow results to be extrapolated to the total Portuguese population, while the third database was limited to the population using mental health services in certain geographic areas of the country, which does not reflect the national reality.

Second, two of the studies (WMHS Portugal and SMAILE Project) had a cross-sectional design and are unable to establish causal inference (373). The statistical models allow us to identify which variables are associated with a given outcome, but these associations are only probable risk factors, requiring longitudinal studies to be confirmed. In the longitudinal study (MH Crisis Impact Study), which evaluated the impact of the economic crisis on the use of psychotropic drugs, the analyses did not include terms to account for time trends in drug prescription and/or the net effect of cost-containment pharmaceutical sector policies implemented during the recession (266) which makes it more difficult to interpret the findings.

Third, all the studies were observational and subject to confounding bias, due to unmeasured confounding.

Fourth, the research work of two of the studies (WMHS Portugal and MH Crisis Impact Study) was based on self-reported measures assessed retrospectively, which could be subject to recall bias or have been over-reported by one group compared to other.

Fifth, the choice of the studied variables was dependent upon availability of data. Although very relevant variables were chosen, based on an extensive literature review, several other relevant variables could have been chosen. During the second research phase, it would have been interesting to study variables such as financial hardship, mental health insurance benefits, or urban residence, or to include other reasons for not initiating treatment that were not included in our list. However, these variables were not included in the diagnostic interview, or the low number of participants or answers prevented them from being included in the

analyses. During the third research phase, the independent variables were assessed based on a retrospective clinical record review, and the use of routinely collected clinical data may have led to data quality issues (e.g. risk of misclassification). Furthermore, the scarcity of published information regarding the characteristics of the psychiatric departments and the non-inclusion of area-related variables hinders a better understanding of the impact of these factors on the outcomes.

Sixth, in the study using data from the World Mental Health Survey Portugal, disability was evaluated in the previous month, whereas mental disorders were evaluated in the previous 12 months. For episodic conditions, the past month disability may not include the time period of the disorder, while using a 12-month diagnosis allows the inclusion of remitted disorders that may have residual adverse effects on disability (374).

Seventh, in the MH Crisis Impact Study, education was used as an indicator of socioeconomic position, a complex construct to measure. Education is widely used as an indicator of socioeconomic position in epidemiological studies, because it is relatively easy to measure in self-administered questionnaires, response rates to educational questions tend to be high, and it is fairly stable beyond early adulthood (375).

Eighth, this research used data that are no longer recent and that might fail to capture the recent health-system and macroeconomic changes in Portugal.

Ninth, some of the most disabling mental disorders, such as schizophrenia, were not evaluated in WMHS Portugal and MH Crisis Impact Study, which limits the comparisons with the results of the SMAILE project.

Lastly, regarding the systematic review, studies from some of the most severely affected countries by economic crises were not available, and this low representation of geographical and health systems limits the interpretation of our results. The diversified designs of the included studies make it difficult to derive more homogeneous and robust conclusions, and to ascertain causality. Additionally, measurement error may have occurred for some of the indicators, since service indicators are dependent on the nature and structure of the services, many are clinical and not based on standardised interviews and have limitations such as potential variations in the registry.

Despite these limitations, the main contribution of this doctoral thesis is to provide essential national epidemiological information about the magnitude of unmet needs in mental health, the main barriers to care, and to help identify subgroups that are most vulnerable to these barriers and to more severe hospitalisation patterns. This knowledge is essential to better design actions to reduce the treatment gap and mental health inequalities, and to improve the quality of care. This thesis also adds information on the impact of the Great Recession on the patterns of care in Portugal, a research area still scarce in the national context.

4.4. Future research directions

Considering the findings and limitations of the present investigation, the gaps in the existing national and international literature, and the goal of supporting the development of policies to reduce the care gap, further research in this area is required, particularly in the Portuguese context. There are several important topics for future research:

- Longitudinal studies should be carried out to ascertain causality and to confirm risk factors. Future research should aim to disentangle the complex impact of different individual characteristics and other factors, such as contexts and practices.
- A replication of the study conducted in phase three in different geographic areas of the country and in additional psychiatric departments would be important in order to complete the panorama of this theme at the national level.
- It would be important to conduct studies that focus on variables not studied in the present investigation, such as the characteristics of the psychiatric departments. Future more systematized knowledge about the structure and the organisation of health and social care services addressed to people with mental disorders in Portugal, based on standardised tools, should provide data about care associated with specific diagnoses, reasons for delay in seeking care, continuity of care received, level of patient compliance, and patterns of referral and inform services and policies improvement. This description must be sensitive and assess changes in the organisation of mental health services over time. Research evaluating acute psychiatric inpatient care would also be useful for refining inpatient services, discharge planning and clinical audit (135).
- Further research should also set a balance between length of stay, number of hospitalisations, and satisfactory quality of care, and focus on a better understanding about the clinical decision processes that lead to an involuntary hospitalisation.
- It would also be important to conduct controlled studies to develop, implement and evaluate interventions that focus on the reduction of care gap or on more severe hospitalisation patterns, such as providing effective social care for the socially disadvantaged patients, arranging professional support through rehabilitation and

housing services or utilising resources in the patient families and wider social networks (376).

- We are now experiencing a new economic crisis and others will occur in the future, and more empirical and long-term studies are needed in order to adapt mental health care systems to the needs of the populations. Studies that explore the impact of the socioeconomic crisis on the use of mental health care, such as repeated cross-sectional analyses before, during and after the onset of the socioeconomic crisis, would be very useful.
- Lastly, quality studies on the perspectives of people with mental disorders should have a central place of public health research, since experiences and trajectories within the health system may contribute to policies that address their specific needs and contribute to the quality and equity in mental health care. This increased participation is a practical manifestation of the slogan "nothing about us without us" (377).

5. Policy implications and conclusions

Data-driven information about the needs for services of populations is fundamental when formulating mental health policy to improve population health (80). The present investigation aims to broaden evidence about the use of mental health care in the national context that might help to establish priorities for action.

This research confirms the high unmet needs for care in Portugal and identifies the main barriers to care and subgroups most vulnerable to these barriers.

Central to the work of this thesis is the idea that mental health is a global public good and a fundamental human right (1). The public health and human implications of the unmet need for effective, quality mental health care are enormous and make it imperative that we address the problem and close this gap. However, mental health remains a low priority worldwide and in Portugal. Mental health is one of the most neglected areas of health, and much more should be done to profoundly change the current situation. The results of this thesis strongly suggest that ***Portugal should consider mental health as a public priority, particularly during an ongoing severe economic crisis***.

After several years of lack of definition and investment, the current severe health and economic crisis should be an opportunity to build the case for investing in mental health and to accelerate mental health care reforms (211, 213, 361). ***Using the current momentum of interest in mental health, this should be the time to generate the political commitment of the main policy makers and to build consensus among relevant stakeholders*** – practitioners, users and family members, health sectors and other related areas, political parties and civil society – on the policy objectives that should be implemented.

A significant increase in financial resources for mental health is needed to reduce the treatment gap of mental disorders, but is not enough (80). There is the need to ***improve governance of the mental health system and to apply a public mental health approach*** to progress in mental health services (106). The updated national mental health policy, plan and legislation should include the evidence of the role of the social determinants of mental health and have a focus on disease prevention among people at high risk and health promotion for

all, over the life course. Now it is also the time to update the current mental health law according to the principles of recovery and human rights defended by WHO and other international organisations, as well as the recommendations of the Convention on the Rights of Persons with Disabilities (104). ***A more rational use of resources, a better organisation of services, and the introduction of changes in the financing of mental health services*** are also essential aspects to respond to people's mental health needs (80, 211, 251, 375).

The political commitment and consensus to give mental health the importance it really deserves in Portugal depends on gathering and disseminating data about the mental health situation and on developing key messages about the strategies that proved to be more effective to improve it (80, 180, 211). The findings of this thesis add information on the impact of economic crises on the patterns of care, and on factors influencing more severe hospitalisation patterns.

During economic crises, populations' mental health protection can only be achieved by marshalling the policies of multiple sectors besides the health sector, with a whole-of government, multisectoral approach, and community involvement to maximise health outcomes and to tackle the health, social, and economic consequences of mental disorders. It is also essential to improve the capacity of health services to respond to the increased mental health demands and to mitigate disparities in health-care provision (213, 364–366, 372). The provision of accessible, comprehensive, and coordinated treatment and care to those with identified needs can only be achieved by ***deepening a network of community-based mental health services, promoting the integration of mental health in primary care, and strengthening the coordination with social care*** (211). The access to well developed, integrated and multidisciplinary community-based mental health care to all populations is a fundamental task, but incomplete in Portugal (80, 211). Services must pay attention to populations at high risk of mental health problems, ensure continuity of care for users, and increase outreach care for those who do not seek them. The primary care approach also increases access to mental health care and shifts the focus to detecting mental health problems early (361), but the development of collaborative programmes with primary care remains clearly insufficient in Portugal (211). The provision of comprehensive, integrated and responsive mental health and social care services in community–based settings for the

seriously ill also remains insufficient (211, 251). The COVID-19 pandemic taught us important lessons, such as that small, personalised, and tailored facilities are safer places than larger residential facilities (371).

Understanding who the high-risk patients are provides relevant information to support clinicians and policy makers to implement targeted strategies and specific interventions. The needs of this most vulnerable population among those with mental disorders should be addressed to reduce health-care inequalities. Future strategies to reduce severe hospitalisation patterns include the ***development of a more robust and widespread network of community aftercare facilities, the best solution to ensure follow-up and prevent relapses***. New and more adequate financing models for mental health care that incorporate incentives for appropriate community and social care should be implemented (378). ***Advocating for the desires and preferences*** of patients concerning a future crisis, increasing the self-monitoring of their illnesses, providing structured approaches to support decision making by patients (379), increasing patient participation in treatment choices and their satisfaction with psychiatric treatment, involving family and friends, and improving the cooperation between community mental health and hospital teams are also important steps to ***guarantee continuity of care and the definition of a shared therapeutic plan*** (163, 351).

In summary, to respond to the challenges identified in this thesis mental health services should be scaled up as an essential component of universal health coverage and should be fully integrated into the global response to other health priorities (1). Mental health policies should include, among their main specific objectives, issues such as allocating more resources for mental health services, and making better use of existing resources, integrating mental health as part of primary care, integrating mental and physical health care, developing community-based care and psychosocial rehabilitation facilities/programmes ("Cuidados Continuados") through cooperation between the healthcare sector and other sectors, decreasing the stigma and the discrimination associated with mental disorders, and promoting public policies and developmental efforts in disease prevention and health promotion across sectors (1, 80).

To formulate policies and plans, deliver and evaluate services, ***it is essential at every step to mobilise the voices of people with a lived experience of mental disorder***, to promote their

full involvement and to recognise the importance of their aspirations and to respect their human rights.

6. References

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Appendix I: Questionnaire for data collection of the SMAILE project

Número do processo clínico:_____ Serviço:_____ Ano em avaliação:_____ □Consulta □Internamento

Dados socio-demográficos

Sexo: □F □M Idade: _____ Estado civil: □solteiro/a □casado/a ou em união de facto □divorcido/a ou separado/a □viúvo/a

Data de nascimento:_____ Naturalidade:_____ Morada:_____

Freguesia de residência:_____ Concelho de residência:_____

Anos de escolaridade completos: □sem escolaridade □<4 □4 □6 □9 □ensino secundário □ensino superior

Profissão:_____ Situação na profissão: □empregado/a □empregado/a de baixa □desempregado/a □reformado/a □estudante □doméstica □sem atividade

Dados clínicos no ano em análise

Diagnóstico psiquiátrico principal (CID-10): _____

Diagnóstico(s) psiquiátrico(s) secundário(s) (CID-10): _____ Data do(s) diagnóstico (s): _____

Comorbilidade médica:_____

Números no ano: Internamentos _____ Dias de internamento _____ Consultas _____ (Colher a informação disponível no processo)

Internamentos compulsivos: □não □sim, quantos?_____ Comportamentos aditivos: □não □sim, quais? _____

Ideação suicida: □não □sim Tentativas de suicídio: □não □sim, quantas? _____

Tipo(s) de intervenção: □psicofármacos □psicoterapia □hospital de dia □reabilitação psicossocial □outra _____

Appendix II: Supplementary material of original research article n°1

	Identifies economic crisis TI,AB
1	"economic recession".ti,ab.
2	"financial crisis".ti,ab.
3	"financial crises".ti,ab.
4	"economic crisis".ti,ab.
5	austerity.ti,ab.
6	unemployment.ti,ab.
7	poverty
8	1 or 2 or 3 or 4 or 5 or 6 or 7
	Identifies use of mental health services TI,AB
9	"mental health service".ab,ti.
10	"use of services".ab,ti.
11	"services use".ab,ti.
12	"utilization of services".ti,ab.
13	"services utilization".ti,ab.
14	"primary care".ti,ab.
15	("health care" OR healthcare).ti,ab.
16	("health utilization" OR "health utilisation").ab,ti.
17	"psychiatric care".ab,ti.
18	("specialized care" OR "specialised care").ab,ti.
19	"health services accessibility".ti,ab.
20	"mental health care".ti,ab.
21	"emergency service*".ab,ti.
22	"outpatient service*".ab,ti.
23	"outpatient visit*".ab,ti.
24	"psychiatric admission*".ab,ti.
25	"psychotropic mediation".ab,ti.
26	9 or 10 or 11 or 12 or 13 or 14 or 15 or 16 or 17 or 18 or 19 or 20 or 21 or 22 or 23 or 24 or 25
	Identifies mental health problems TI,AB
27	"mental disorder*".ab,ti.
28	"mental illness".ab,ti.
29	depress*.ab,ti.
30	anxiety.ab,ti.
31	"substance abuse".ab,ti.
32	"alcohol abuse".ab,ti.
33	psychosis.ab,ti.
34	suicid*.ti,ab.
35	self-harm.ab,ti.
36	parasuicide.ab,ti.
37	27 or 28 or 29 or 30 or 31 or 32 or 33 or 34 or 35 or 36
	8 and 26 and 37

Table 27 — Search strategy for Ovid MedLine

Study	Objective clearly stated	Study population specified and defined	Participation rate at least 50%	Recruitment from the same or similar populations	Sample size justification, power description, or variance and effect estimated	Exposure of interest measured prior to the outcome	Sufficient timeframe	Examination of different levels of the exposure	Exposure measures clearly defined, valid, reliable, and implemented	Exposure assessed more than once	Outcome assessors blinded	Follow up incomplete data <20%	Adjustment for cofounding variables
Ásgerisdóttir et al., 2016	Yes	Yes	Yes	Yes	No	No	Yes	No	Yes	Yes	N/A	N/A	No
Bidargaddi et al., 2015	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	N/A	N/A	No
Bonnie Lee et al., 2017	Yes	Yes	Yes	Yes	No	No	Yes	Yes	Yes	Yes	N/A	N/A	Yes
Buffel et al., 2015	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	N/A	N/A	Yes
Burgard et al., 2014	Yes	Yes	Yes	Yes	No	No	Yes	Yes	Yes	Yes	N/A	N/A	Yes
Chen & Dagher, 2014	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	N/A	No	Yes
Córdoba-Doña et al., 2014	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	N/A	N/A	Yes
Dunlap et al., 2016	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	N/A	N/A	Yes
Gotsens et al., 2015	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	N/A	N/A	Yes
Hawton et al., 2016	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	N/A	N/A	No
Iglesias et al., 2014	Yes	Yes	N/A	Yes	No	No	Yes	Yes	Yes	Yes	N/A	N/A	No
Korkeila et al., 1998	Yes	Yes	Yes	Yes	No	No	Yes	No	Yes	Yes	N/A	N/A	Yes
Modrek et al., 2015	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	N/A	N/A	Yes
Ostamo & Lonnqvist, 2001	Yes	Yes	N/A	Yes	No	No	Yes	No	Yes	Yes	N/A	N/A	No
Petrou, 2017	Yes	Yes	N/A	Yes	No	Yes	Yes	No	Yes	No	N/A	N/A	No
Sicras-Mainar & Navarro-Arteida, 2016	Yes	Yes	Yes	Yes	No	No	Yes	No	Yes	No	N/A	N/A	No
Wong et al., 2014	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	N/A	N/A	Yes

Table 28 — Quality assessment

Appendix III: Study ethical approval

Decisão final sobre o projeto "Mental health services organization in Portugal and the impact of the economic crisis on their utilization"

A Comissão de Ética da NMS|FCM-UNL (CEFCM) decidiu, por unanimidade, aprovar o projeto de investigação intitulado "Mental health services organization in Portugal and the impact of the economic crisis on their utilization" (nº29/2016/CEFCM), submetido pela Dra. Maria Manuela Correia Vieira da Silva.

Lisboa, 12 de Julho de 2016

O Presidente da Comissão de Ética,

(Prof. Doutor Diogo Pais)

TO WHOM IT MAY CONCERN

The Ethics Research Committee NMS|FCM-UNL (CEFCM) has unanimously approved the Project entitled "Mental health services organization in Portugal and the impact of the economic crisis on their utilization" (nr.29/2016/CEFCM), submitted by Dr. Maria Manuela Correia Vieira da Silva.

Lisbon, July 12th, 2016

The Chairman of the Ethics Research Committee,

(Diogo Pais, MD, PhD)

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NOVA MEDICAL SCHOOL

Declaração

A Comissão de Ética da NMS|FCM-UNL (CEFCM) decidiu, por unanimidade, aprovar a alteração ao titulo do projeto de investigação intitulado " Mental health services organization in Portugal and the impact of the economic crisis on their utilization" para "***Patterns of use of mental health care in Portugal, before and during an economic crisis***" (n°29/2016/CEFCM), submetido pela Dra. Maria Manuela Correia Vieira da Silva, no âmbito do Doutoramento em Medicina.

Lisboa, 5 de março de 2021

O Presidente da Comissão de Ética,

(Professor Doutor Diogo Pais)

Campo Mártires da Pátria, 130
1169-056 Lisboa · Portugal

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Appendix IV: World Mental Health Survey Portugal ethical approval

UNIVERSIDADE NOVA DE LISBOA
Faculdade de Ciências Médicas
Comissão de Ética

Exmo. Senhor
Professor Doutor José Manuel Caldas de Almeida
Departamento Universitário de Saúde Mental
Faculdade de Ciências Médicas da
Universidade Nova de Lisboa

Lisboa, 9 de Janeiro de 2008

Exmo. Senhor Professor,

Junto envio a V.Excia. o Parecer nº 10/2008 da Comissão de Ética da Faculdade de Ciências Médicas, a qual aprovou, na sua reunião ordinária de 9 de Janeiro de 2008, o projecto "Estudo epidemiológico nacional de morbilidade psiquiátrica: prevalência, factores de risco, carga social e económica e utilização de serviços".

Sem outro assunto, aproveito para apresentar a V.Excia. os meus melhores cumprimentos

O Presidente da Comissão de Ética da FCM-UNL

Professor Doutor J.A. Esperança Pina

Campo dos Mártires da Pátria, 130
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Tel. 21 8803039
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UNIVERSIDADE NOVA DE LISBOA
Faculdade de Ciências Médicas
Comissão de Ética

Parecer nº 10/2008

Identificação do Projecto/Estudo: Estudo epidemiológico nacional de morbilidade psiquiátrica: prevalência, factores de risco, carga social e económica e utilização de serviços.

Tipo de estudo:
Investigação biomédica em humanos, sem medicamento experimental, com objectivos exclusivamente científicos sem intervenção (metodologia exclusivamente epidemiológica)
O estudo baseia-se essencialmente na colheita de informação utilizando um *Instrumento de Avaliação do World Mental Health Survey (IA-WMHS)* numa amostra probabilística da população geral, acima de 18 anos de idade, residente em unidades domiciliárias, em Portugal continental.

Está previsto que nos participantes que derem o seu consentimento informado o estudo possa incluir adicionalmente um estudo genético. Nestas circunstâncias o estudo passará a ser considerado um estudo com intervenção (procedimento complementar de diagnóstico ou de avaliação)

Promotor: Departamento de Saúde Mental da FCM/UNL em cooperação com a Universidade Católica

Investigador Responsável:
Prof. Doutor Caldas de Almeida (FCM/UNL)

Centros Participantes:
Departamento de Saúde Mental da FCM/UNL
Universidade Católica (Instituto de Ciências da Saúde e Centros de Estudos e Sondagens de Opinião, Prof. Doutor Pedro Magalhães (Coordenador do Trabalho de Campo)
Universidade de Harvard (Ron Kessler)
OMS (Bedirhan Ustun)
Departamento de Genética da FCM/UNL (Prof. Doutor José Rueff e Prof. Doutor Jorge Gaspar)

Clínico(s) responsável(is) pelos sujeitos incluídos no estudo:
Prof. Doutor Caldas de Almeida
Prof. Doutor Fernando Miguel Teixeira Xavier
Profa. Doutora Graça Maria Pereira Cardoso
Prof. Doutor Ricardo Duarte Miranda de Gusmão
Mestre Manuel Maria dos Santos Gonçalves Pereira
Mestre Joaquim Filipe Candeias de Sousa Gago

A recolha de amostras biológicas para o estudo genético (saliva e células bucais) será efectuada por entrevistadores leigos. No Anexo "Componente genética" refere-se que receberão formação adequada para o efeito.

Campo dos Mártires da Pátria, 130
1169-056 Lisboa
Portugal

Tel. 21 8803039
Fax:21 8852313
Site:epina.anat@fcm.unl.pt

Qualificação dos investigadores: Adequada quer para a investigação clínica na área da psiquiatria quer epidemiológica, quer laboratorial para assegurar as Boas Práticas de Laboratório e a manipulação de material genético.

Protocolo:

- Avaliação benefício/risco: Não existe nenhum benefício directo imediato para os participantes. Em casos excepcionais poderá no decurso do projecto ser identificada alguma perturbação que necessite tratamento. Neste caso serão fornecidas informações sobre os serviços locais disponíveis o que poderá constituir um benefício. O risco é nulo no caso do estudo exclusivamente epidemiológico e também insignificante na versão com estudo genético (recolha de ADN de amostras de saliva e células bucais, não estão previstos métodos invasivos). O projecto integra-se numa iniciativa mundial- *World Mental Health Survey*, coordenada pela OMS e a Universidade de Harvard que aceitou a participação específica do promotor nacional (ver anexo "ITR_portugal-1").
- Modalidades de recrutamento dos participantes: Devidamente discriminadas no Capítulo IV (Métodos) do Anexo "Projecto"
- Especificações dos locais de recolha de dados: Devidamente discriminadas no no Capítulo IV (Métodos) do Anexo "Projecto"
- Especificações da recolha de amostras biológicas: Mencionadas no Anexo "Componente genética"

Informação aos voluntários: Devidamente discriminadas no Capítulo IV (Métodos) do Anexo "Projecto" e incluída nos Anexos "Cons inf entrevista" e "Cons inf gen"

Consentimento informado relativo ao estudo epidemiológico: Devidamente discriminadas no Capítulo IV (Métodos) do Anexo "Projecto" e incluída no Anexo "Cons inf entrevista"

Consentimento informado relativo à participação na componente genética: Devidamente discriminadas no Capítulo IV (Métodos) do Anexo "Projecto" e incluída no Anexo "Cons inf gen"

Protecção de dados dos participantes/confidencialidade: Discriminada no capítulo V (Aspectos Éticos) do Anexo "Projecto". É ainda referido que os dados serão propriedade da FCM podendo ser incluídos numa base internacional. Consta em anexo ("DATA USE, AND COLLABORATION AGREEMENT") o acordo estabelecido com a Universidade de Harvard para o efeito. Utilização específica de dados da componente genética discriminada no Anexo ("DNA collection and use agreement").

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Comentário final
Não estão criadas disposições legais especificamente aplicáveis a estes estudos que obriguem a submissão à Comissão de Ética para a Investigação Clínica (CEIC).

Em conclusão, parece a esta Comissão de Ética, pelo exposto, a aprovação do projecto supracitado.

Lisboa, 9 de Janeiro de 2008

O Presidente da Comissão de Ética da FCM-UNL

Prof. Doutor J. A. Esperança Pina

Campo dos Mártires da Pátria, 130
1169-056 Lisboa
Portugal

Tel. 21 8803039
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Site:epina.anat@fcm.unl.pt

Appendix V: National Mental Health Survey Follow-up ethical approval

Decisão final sobre o projecto "Evaluating and improving the access to Mental Health services of people affected by the economic crisis in Portugal based on a new understanding of the effects of the crisis on mental health of the population"

A Comissão de Ética da NMS/FCM-UNL (CEFCM) decidiu, por unanimidade, aprovar o projeto de investigação intitulado "Evaluating and improving the access to Mental Health services of people affected by the economic crisis in Portugal based on a new understanding of the effects of the crisis on mental health of the population" (nº16/2015/CEFCM), submetido pelo Prof. José Miguel Caldas de Almeida.

Lisboa, 23 de Julho de 2015

O Presidente da Comissão de Ética,

(Prof. Doutor Diogo Pais)

TO WHOM IT MAY CONCERN

The Ethics Research Committee of the NOVA Medical School/Faculty of Medical Sciences (Faculdade de Ciências Médicas da Universidade Nova de Lisboa) has unanimously approved the Project entitled "Evaluating and improving the access to Mental Health services of people affected by the economic crisis in Portugal based on a new understanding of the effects of the crisis on mental health of the population" (nr.16/2015/CEFCM), submitted by Prof. José Miguel Caldas de Almeida.

Lisbon, July 23th, 2015

The Chairman of the Ethics Research Committee,

(Prof. Doutor Diogo Pais)

Campo dos Mártires da Pátria, 130 | 1169-056 Lisboa | Portugal | T. +351 218 803 000 – Ext. 20447 E-mail cefcm@fcm.unl.pt

Appendix VI: SMAILE project ethical approval

MINISTÉRIO DA SAÚDE

hospital de magalhães lemos E.P.E.

002054 HML 12/JUN/ 13

Exma. Senhora
Prof. Doutora Ana Paula Santana
Departamento de Geografia
Faculdade de Letras da Universidade de Coimbra
Colégio de São Jerónimo
3400-530 COIMBRA

Assunto: Pedido de autorização de participação no Projeto de Investigação SMAILE – "Saúde Mental – Avaliação do Impacte das condicionantes Locais e Económicas"

Em resposta ao ofício de V. Exa. referente ao assunto em epígrafe, cumpre-nos informar que foi dado parecer favorável pela Comissão de Ética para a Saúde deste Hospital, a 05.06.2013 e na mesma data autorizado em reunião pelo Conselho de Administração.

Com os melhores cumprimentos,

O Presidente do Conselho de Administração,

Dr. António Leuschner

Rua do Professor Álvaro Rodrigues 4149-003 Porto
tel. 226192400 fax: 226184084 E-mail hml@hmlemos.min-saude.pt

Mod. 49

Ministério da Saúde

CENTRO HOSPITALAR DE LISBOA OCIDENTAL, E.P.E.

HOSPITAL DE EGAS MONIZ

PARECER DA COMISSÃO DE ÉTICA

Projeto de Investigação,

"SMAILE - Avaliação do Impacte das condicionantes Locais e Económicas"

Após reunião de 25 de novembro de 2013 e estando o projeto de acordo com as normas de submissão impostas por esta CE, deliberou-se emitir ***parecer favorável*** sobre a realização do mesmo.

A Comissão de Ética solicita à Investigadora Principal que, quando da conclusão deste estudo/projeto, lhe seja enviada uma síntese dos resultados e conclusões do mesmo.

Ouvido o Relator, o processo foi votado pelos Membros da Comissão de Ética do Centro Hospitalar de Lisboa Ocidental presentes em reunião de 25 de novembro de 2013:

Presidente: Prof.ª Doutora Maria Teresa Marques

Dr. Carlos Costa, Padre João Valente, Dra. Helena Farinha,

Dra. Paula Peixe, Dr. José Santana Carlos, Enf.ª Clara Carvalho, Dr. Rui Teles

Pelo exposto, emitiu-se a 28 de novembro de 2013, **parecer favorável**.

Presidente da Comissão de Ética

Prof.ª Doutora Maria Teresa Marques

MARIA TERESA MARQUES
Presidente da Comissão de Ética

Hospital de Egas Moniz
Rua da Junqueira, 126 - 1349-019 Lisboa // Telefone: 210 432 665

PROF. DOUTOR FERNANDO FONSECA EPE
HOSPITAL

DECLARAÇÃO

Para os devidos efeitos, se declara que no dia 3 de Julho de 2013 foi aprovada pela Comissão de Ética para a Saúde do Hospital Prof. Doutor Fernando da Fonseca, E.P.E. o Projecto de Investigação "SMAILE - Saúde Mental - Avaliação do Impacte das condicionantes Locais e Económicas" a realizar no Serviço de Psiquiatria.

A esta aprovação procederam os seguintes membros:

Presidente	Prof. Victor Gil
Vice-Presidente	Dr. Silva Pereira
Vogais	Dr.ª Renata Afonso
	Enf.ª Helena Cardoso

Mais se declara que a CES do HPDFF EPE, cumpre com as Normas da Boa Prática Clínica.

Amadora, 3 de Julho de 2013

O Presidente da Comissão de Ética do HFF, EPE

FERNANDO FONSECA
03 JUL. 2013
COMISSÃO DE ÉTICA
(Prof. Victor Gil)

HOSPITAL PROFESSOR DOUTOR FERNANDO FONSECA, E.P.E.
2720-276 AMADORA
TEL.: 21 434 82 00 FAX: 21 434 55 66

CAP. ESTATUTÁRIO: € 18.200.000,00
NIF: 503 035 416

Ministério da Saúde

CENTRO HOSPITALAR PSIQUIÁTRICO DE LISBOA

Despacho do Conselho de Administração	Autorizo-se ao exato termo da proposta pela Comissão Científica e Pedagógica.

Luís Gamanas
Conselho de Administração
Enfermeiro Diretor

José Augusto
Conselho de Administração
Diretor Clínico

Sandra Pereira
Conselho de Administração
(Vogal Executiva)

Isabel Vaixão
Conselho de Administração
(Presidente)
29/1/2015

Assunto:	Projeto: Preditores individuais e contextuais de evolução clínica num estudo longitudinal de utilizadores de departamentos

Promotor:	Fundação para a Ciência a Tecnologia

Coordenador/a Científica:	FCM - UNL

Investigadores:	Drª Maria Manuela Correia Vieira da Silva

Parecer da CCP:	Parecer da CES:
A Comissão Cientifica e Pedagógica nada tem a opor à realização deste estudo científico, propondo no entanto a ser autorizado que a requerente realize uma sessão de apresentação do trabalho no CHPL, devendo igualmente disponibilizar um exemplar do estudo para a biblioteca. CHPL,21-01-2015 A Presidente da CCP Cristina A. Pereira Administradora Hospitalar	A Comissão de Ética para a Saúde decidiu, na reunião de 14.11.2014, que o presente processo seja avaliado pela Comissão Cientifica e Pedagógica. A Presidente da CES (Drª Paula Nunes) 14/11/2014 Dr. PAULA NUNES Presidente da Comissão de Ética para a Saúde

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NOVA MEDICAL SCHOOL FACULDADE DE CIÊNCIAS MÉDICAS

UNIVERSIDADE NOVA DE LISBOA

À Comissão de Ética para
a Saúde + Ficheiro.
04/11/2014

Exmo(a). Senhor(a)
Presidente do Conselho de Administração do
Centro Hospitalar Psiquiátrico de Lisboa
Avenida do Brasil, nº 53
1749 - 002 Lisboa

Assunto: Pedido de autorização de participação no Projeto de Investigação "Preditores individuais e contextuais de evolução clínica num estudo longitudinal de utilizadores de departamentos de psiquiatria"

Maria Manuela Correia Vieira da Silva, na qualidade de investigadora responsável do projeto de investigação "Preditores individuais e contextuais de evolução clínica num estudo longitudinal de utilizadores de departamentos de psiquiatria", vem por este meio solicitar a vossa Excelência a autorização para que a instituição que representa participe no referido projeto. Junto se remete a documentação para submissão do projeto de investigação à aprovação pela Comissão de Ética do Centro Hospitalar Psiquiátrico de Lisboa.

Este projeto de investigação servirá para elaboração de tese de Doutoramento e está integrado no projeto SMAILE - Saúde Mental - Avaliação do Impacte das Condicionantes Locais e Económicas (PTDC/ATP-GEO/4101/2012), financiado pela Fundação para a Ciência e a Tecnologia, e a decorrer na vossa instituição.

Aguarda-se a vossa resposta.

Com os melhores cumprimentos,

Lisboa, 22 de Outubro de 2014.

183333

C H P L
29. OUT 20
AV. BRASIL, 53 • 1749-002 LISBOA

Maria Manuela Correia Vieira da Silva
Doutoranda em Medicina pela
Faculdade de Ciências Médicas da Universidade Nova de Lisboa

ULSBA
Unidade Local de Saúde do Baixo Alentejo, EPE

Declaração

Na qualidade de Presidente da Comissão de Ética da ULSBA declaro, para os devidos efeitos, que a instituição participou no estudo "SMAILE - Saúde Mental - Avaliação do Impacto das Condicionantes Locais e Económicas" após a sua aprovação por esta Comissão (Ata nº 5, Ponto 6 de 16.10.2013).

Informo, ainda, que o Conselho de Administração da ULSBA corroborou esta decisão deliberando, em reunião de 4.12.2013, autorizar a participação no estudo.

Por ser verdade passo a presente declaração que dato e assino.

Beja, 24 de fevereiro de 2021

(Ana Matos Pires)